

CRITICAL REVIEW.

For M A Y, 1786.

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ARTICLE XVI. On the rotatory Motion of a Body of any Form whatever, revolving, without Restraint, about any Axis passing through its centre of Gravity. By Mr. John Landen, F. R. S.—Mr. Landen, in the *Philosophical Transactions* for 1777, and in his *Mathematical Memoirs*, has shewn, that any body, of certain dimensions, will, if uniformly dense, and made to revolve freely on any axis passing through its centre of gravity, continue to revolve about the same axis. If the axis be not permanent, its poles must constantly change; and it is of consequence, in the present improved state of astronomy, to enquire into the rate of variation, and its quantity, in every body whatever. The quantity of variation, our author calls the tract of polar evagation, and the object of this paper is to ascertain it, in given circumstances. The paper consists of mathematical reasoning, and cannot be abridged. Mr. Landen opposes the arguments of messieurs Euler and d'Alembert, whose conclusions differ from his own, with great force. The earth, as neither uniformly dense, nor regularly spheroidal, must have three permanent axes of rotation; and, if we add to these causes, the effects of other attracting bodies, it must endeavour to revolve about many successive momentary axes. But if the earth's rotatory motion is disturbed only by the centrifugal force, arising from the vis inertiae of its own particles, its tract of polar evagation will be nearly a circle, whose diameter is very small. In other planets, from the same cause, but otherwise in different circumstances, it may be greatly varied.

ART. XVII. Description of a new Marine Animal. By Mr. Everard Home, Surgeon. With anatomical Remarks upon the same, by John Hunter, Esq. F. R. S.—This animal has never been before described. It was violently raised from

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the deep abyfs, in which the species usually live concealed, by the violent hurricane at Barbadoes, in 1780. It refided in a brain-stone, a species of madrepore; but, though protected by the stone, it is still covered by a shell, which is immoveably confined in the coral, besides two moveable shells, which cover some of the softer parts, not entirely protected by its stony habitation. We cannot give any intelligible description of the animal, without the assistance of the plate.

The postscript, by Mr. Hunter, is ingenious; but the imperfect state of the animal, when preserved in spirits, has prevented him from being as particular as we could wish.

• The internal structure of this animal, like most of those which have tentacula, is very simple; it differs, however, materially from many, in having an anus, most animals of this tribe, as the polypi, having only one opening, by which the food is received, and the excrementitious part of it also afterwards thrown out; this we must have supposed, from analogy, to take place in the animal which is here described, more particularly since it is inclosed in a hard shell, at the bottom of which there appears to be no outlet; but as there is an anus this cannot be the case.

• It is very singular, that in the leach, polypi, &c. where no apparent inconvenience can arise from having an anus, there is not one, while in this animal, where it would seem to be attended with many, we find one; but there being no anus in the leach, polypi, &c. may depend upon some circumstance in the animal œconomy which we are at present not fully acquainted with.

• The univalves, whose bodies are under similar circumstances respecting the shell with this animal, have the intestine reflected back, and the anus, by that means, brought near to the external opening of the shell, the more readily to discharge the excrement; and although this structure, in these animals, appears to be solely intended to answer that purpose, yet, when we find the same structure in the black snail, which has no shell, this reasoning will not wholly apply, and we must refer it to some other intention in the animal œconomy.

• In this animal we must therefore rest satisfied that the disadvantageous situation of the anus, with respect to the excrements being discharged from the shell, answers some purpose in the œconomy of the animal, which more than counterbalances the inconveniences produced by it.

• It would appear, from considering all the circumstances, that the excrement thrown out at the anus must pass from the tail along the inside of the tube, between it and the body of the animal, till it comes to the external opening of the shell, as there is no other evident mode of discharging it.

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The tribe of animals which have tentacula and double cones, like this described by Mr. Home, is little known; perhaps their chief residence is in the deepest seas.

Art. XVIII. A Description of a new System of Wires in the Focus of a Telescope, for observing the comparative Right Ascensions and Declinations of celestial Objects; together with a Method of investigating the same when observed by the Rhombus, though it happen not to be truly in an equatorial Position. By the Rev. Francis Wollaston, LL. B. F. R. S.—In our Fifty-ninth Volume, page 166, we gave some account of Mr. Wollaston's plan of ascertaining the relative situations of the fixed stars, by wires crossing each other, and forming a rhombus; but he candidly informs us, that, for various reasons, it has not hitherto succeeded as he wished. He now proposes a square inscribed in a circle, whose radii cross its sides at right angles. This method is executed with greater accuracy by common workmen, and promises to be useful. As his chief object was to ascertain the right ascensions and declinations of the stars, which were laid down, by observing their meridian passages, and meridian altitudes, as well as by their comparative passage through the field of an equatorial telescope, armed with a system of wires, in a rhomboidal form, he has now added another formula for computing the comparative right ascensions and declinations, when the instrument is not truly in the plane of the equator.

Art. XIX. An Account of a Stag's Head and Horns, found at Alport, in the Parish of Youlgreave, in the County of Derby. By the Rev. Robert Barker, B. D.—This head and horns, which were accompanied by some other bones of the same animal, are of a considerable size. They resemble what are called the throttle-neck horns, from the number of short antlers at the upper part; but exceed them in dimensions. They are even larger than a pair probably two or three hundred years old, which are really of a great size; though this animal, from the appearance of the sutures of the skull, was yet young. The author says, that it was found in a bed of tuft, 'a slope formed by the deposit left by water passing through beds of sticks, roots, vegetables, &c.' It is more probably a kind of tufa, from a very different source.

Art. XX. An Account of the Sensitive Quality of the Tree *Averrhoa Carambola*. By Robert Bruce, M. D.—We continually enlarge our acquaintance with the irritable tribe in the vegetable kingdom; for we think this term more proper than either sensitive or sentient. We believe the leaves of these plants are very generally pinnated, and the 'aschynomene' does not deserve the title of 'movens,' till the lesser folioles

appear. In this species, the joint of the petiolus is the irritable part; for, unless the impression be so great as to bend the foot-stalk, no motion ensues. We believe this circumstance has not been examined with sufficient care in the other irritable plants; and perhaps this property may be found more general than we have hitherto suspected. The concentrated rays of the sun on the petiolus will produce motion; but a hole may be burnt in the leaf, without any such effect. Pressure on the universal petiolus will irritate all the leaves; and, when the pincers press it between any two pair of leaves, those nearest the extremity move sooner than those nearest the body of the plant: a fact no less remarkable than useful in explaining the nature of the motion.

Art. XXI. An Account of some Experiments on the Loss of Weight in Bodies on being melted or heated. By George Fordyce, M. D. F. R. S.—We shall only mention the fact, that water, in a vessel hermetically sealed, gained weight by freezing. The experiment was so carefully made, that it appears, at present, unexceptionable; but, as Dr. Fordyce has not given us his opinion of the cause, we shall not enlarge on it. He suggests other experiments, to elucidate the subject, and we have much reason to think that he means to pursue it. At present, he seems to suspect, that as heat lessens the attractions of cohesion, chemistry, magnetism, and electricity, it may also diminish that of gravitation. But this is mentioned in so guarded a manner, that it ought not to be given as his opinion.

Art. XXII. Sketches and Descriptions of three simple Instruments for drawing Architecture and Machinery in Perspective. By Mr. James Peacock.—These instruments seem to be very useful, and easily managed; but we can give no information relating to their construction, without the plates.

Art. XXIII. Experiments on Air. By Henry Cavendish, Esq. F. R. S. and A. S.—Our knowledge on these subjects is rapidly accumulating: at present, Mr. Cavendish is chiefly employed in detecting errors; but this, we have been long since told, is the first step to wisdom. It was this able chemist's opinion, that the diminution of air by phlogistication was not owing to the generation of fixed air: we need scarcely recall our reader's attention to the dispute, on this subject, between him and Mr. Kirwan. When air was phlogisticated by the electric spark, he supposed the diminution might happen, from its consuming some inflammable matter in its passage. We knew that when air, included by blue infusions, was diminished by the spark, the vegetable colour was changed to a red; and, on this account, the electric fluid was sup-

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posed to be of an acid nature. This experiment succeeded with Mr. Cavendish; and, when the spark reached the air, through lime-water, no deposition followed, though the experiment was repeated till no farther diminution could be perceived. After frequent trials, with the same lime-water, even fixed air passing through it, occasioned no cloudiness in it; but caustic volatile alkali produced a brown precipitate. The lime-water was, therefore, saturated with an acid during the experiment, and the colour of the deposited matter seemed owing to a metallic solution, for the lime-water which confined the air was itself confined by quicksilver. With soap-lees the diminution was more rapid; and the best proportions, that is, those which would leave the least residuum after diminution, are five parts of pure air, and three of common; in other words, seven parts of pure air, and three of phlogistified. On examining the fluid, instead of soap-lees, it was found to be a solution of nitre; so that the acid, formed during the operation, was the nitrous; and, from this cause, arises the usual change in vegetable solutions after these experiments. A very small proportion of vitriolic acid accompanied the nitrous; but not more than is usually found in soap-lees. A small quantity of marine acid was suspected, as a solution of silver was precipitated; but this was found to be owing to the phlogistification of the nitrous acid, a fact of some consequence in our chemical enquiries, particularly in the history of re-agents. Though we have no doubt of this effect arising from phlogistified nitrous acid, yet there is some reason to suspect, that a small proportion of marine acid may still exist together with the nitrous. The foundation of this suspicion is, that a little sea-salt is always found in the nitre-beds.

The origin of the acid Mr. Cavendish explains from his former opinions. He observed that nitre, in deflagration, was changed into phlogistified air; and hence concluded, with great probability, that this air was nothing but nitrous acid, with a superabundant proportion of phlogiston. Dephlogistified air, which is only water deprived of phlogiston, is made to unite with the phlogistified air, by the electric spark; that is, it is dephlogistified in some degree, and the phlogiston, which made it assume the form of air, changes the other ingredient into water, and, between both, the nitrous acid is produced. This fact is of great importance; but we cannot apply it to any purpose, till it be more clearly ascertained that the electric spark adds nothing to the mixture: we need scarcely add, in reviewing Mr. Cavendish's papers, that every precaution was taken to guard against fallacy, arising from the impurity of the materials. The phlogistified

cated air of our atmosphere seemed almost (probably wholly) of this kind; and the diminution did not, in any degree, arise from burnt matter, but entirely from the change into acid. Yet the solution of litmus was so far decomposed as to lose its colour, and to form at last fixed air. As the author has not indulged himself in drawing any consequences from these discoveries, we shall not intrude on his province, or our readers patience: yet, if the theory be established, numerous phenomena may probably be explained from it, particularly the revivifying effects of thunder-forms, the production of nitre, and many others.

Art. XXIV. An Account of a Measurement of a Base on Hounslow-Heath. By Major-general William Roy, F. R. S. and A. S.—This is a national work of very considerable importance; and it seems to have been executed with the judgment and accuracy which the great object required.

‘In the beginning of October, 1783, count d’Adhemar, the French ambassador, transmitted to Mr. Fox, then one of his majesty’s principal secretaries of state, a memoir of M. Cassini de Thury, in which he sets forth the great advantage that would accrue to astronomy, by carrying a series of triangles from the neighbourhood of London to Dover, there to be connected with those already executed in France, by which combined operations the relative situations of the two most famous observatories in Europe, Greenwich and Paris, would be more accurately ascertained than they are at present.

‘This memoir the secretary of state, by his majesty’s command, transmitted to sir Joseph Banks, the very respectable and worthy president of the Royal Society; who, about the middle of November, was pleased to communicate it to me, proposing, at the same time, that I should, on the part of the Society, charge myself with the execution of the operation. To this proposition I readily assented, on being soon afterwards assured, through the proper official channels, that my undertaking it met with his majesty’s most gracious approbation.’

We must suppose our readers acquainted with the operation; for, if they were not, it would exceed our limits to explain it. Those who are acquainted with trigonometry know, that if the base of a triangle be accurately measured, angles are ascertained with the greatest nicety, particularly in the improved state of our mathematical instruments; and, having obtained the dimensions of one triangle, a series of triangles, formed from different visible objects in succession, can be carried on to any distance, and measured with the greatest exactness. But if we err in measuring the base, an inconsiderable error is multiplied, and becomes of consequence, when the triangles are numerous, and the distance great; so that the most minute and anxious attention is required in this operation. We have
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great reason to think that a work of this kind has never, before this time, been so perfectly executed. The gentlemen, entrusted with the operation, have avoided almost every possible cause of error; and, by their precautions, have greatly elucidated several natural effects. It is impossible that we can give even the general detail of their methods, but shall enlarge, somewhat, on some circumstances which occurred to them in their progress.

The chain made by Mr. Ramsden answered exceedingly well; and we would recommend this form even in common mensuration. It has always been thought that fir, cut in the direction of the fibres, was not liable to be affected by moisture; and the choicest rods of this kind, both of New England fir, and Riga wood, thoroughly seasoned (for they were cut from old masts) were employed, but they were found to be affected considerably (we now speak of a very delicate experiment) by moisture; and the usual corrections were uncertain, for sometimes they exceeded, and at others fell short. Metallic rods were too heavy; but they at last procured glass tubes twenty feet long, and perfectly strait. With these tubes the base was ultimately measured. We shall insert a short extract, relating to the remarkable agreement between the glass rods and the chain.

'In this manner we proceeded, and in the course of the day were only able to measure the length of ten chains, or one thousand feet, being the forty-sixth and forty-fifth hypothenuses of the base, the first of four hundred and the last of six hundred feet. Being arrived at this point it was found, that the fine line on the brass slide, marking the extremity of the tenth chain, fell short of another fine line on the same slide, denoting the end of the fiftieth glass rod, just two-tenths of an inch. Now it will appear hereafter, when we come to shew, by the experiments with the pyrometer, what the real contractions of the chain and glass rods were, for the degrees of difference of temperature below that in which their respective lengths were laid off, that this small apparent difference of two-tenths of an inch, between the two modes of measuring the thousand feet, should have been 0.17938 in. to have made the two results exactly agree, which is a real difference of only 0.02062 of an inch. Supposing then every thousand feet of the base to have been measured by the chain with the same attention, and consequently with the same, or nearly the same success (and there surely cannot be any reason to doubt of the practicability) we shall have $27.404 \times 0.02062 \text{ in.} = 0.565 \text{ in.}$ or a defect of something more than half an inch on the whole length of the base.'

The description of what is called the microscopic pyrometer, employed to determine, by experiment, the expansion of
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the metals concerned in measuring the base, then follows: it is alluded to in the above extract. This instrument also we are unable to describe; but, after the several corrections, the measure of the base reduced to the level of the sea, and making a portion of the mean circumference of the earth, amounts to 27404.7219 feet.

Art. XXV. Abstract of a Register of the Barometer, Thermometer, and Rain at Lynddon, in Rutland, 1784. By Thomas Barker, Esq. Also of the Rain at South Lambeth, Surrey; and at Selbourn and Fyfield, Hampshire. By Thomas White, Esq. F. R. S.—The year 1784 was remarkable for the severity of the weather, with which it commenced. In February, the lowest point of the out-door thermometer was 9° ; but there is little information from this mode of keeping a journal. Two observations should be made every day, and each day's weather particularly specified. October, as usual, was dry; but the rain that month, in 1785, compensated for the October droughts of the preceding years.

The volume is concluded, in the common way, with a list of presents; and we must conclude this account by acknowledging our obligations for much instruction contained in the second part, which has been now the subject of our remarks.

The Chemical Essays of Charles William Scheele. Translated from the Transactions of the Academy of Sciences at Stockholm. With Additions. 8vo. 6s. in Boards. Murray.

THIS translation owes its origin to a conversation on the slow gradual manner in which the advances in literature on the continent are communicated to this island. We have often lamented it, in various parts of our Journal, for it has exposed us to the very disagreeable circumstances of correcting authors for errors, which they would have avoided by extending their views beyond the British publications, and of detracting from assumed merit, when they have only hinted at what, in other works, has been fully explained. On this account, we have allotted a large part of our Journal to that science, which is daily augmenting in the number of its facts, and becoming of more consequence by the importance of its discoveries. We have lately too, pointed out some useful publications, which should be made our own, by an English dress, and this kind of recommendation will be occasionally repeated; so that we hope this nation, which has hitherto led the way in science, will not be ashamed, in some instances, to follow. There is only one objection to his plan and ours: the reader may exclaim, 'inopem me copia fecit.' A stock
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of knowledge at once put into his hands; another world opened to his view, may terrify the indolent, and make even a moderately sanguine enquirer hesitate to attempt a study almost new. The objection will, however, be temporary; and should, at least, not impede designs, which must be attended with so many advantages.

Mr. Scheele is chiefly known in England, by his treatise 'on air and fire,' translated by Mr. Forster, and adorned with the remarks of Mr. Kirwan and Dr. Priestley. His other works are mentioned by Bergmann and Fourcroy, by Dr. Priestley, Mr. Cavendish, and some of the more learned English chemists; but his opinions have been gradually introduced, so that many of them are commonly known, even by men who have scarcely ever heard of the author. The translator is known by the Treatise on Elective Attractions, lately published in English, and elucidated by valuable notes; we suspect also, that we are indebted to him for the Dissertations of Spalanzani; and we have had occasion to praise his execution of both these tasks. In the work before us, he rather appears to have been a corrector and editor than a translator. The translation was executed by a foreigner, and a few foreign idioms still occur; but not so many as to render the Essays unpleasing to an Englishman. Mr. Beddoes has, however, added other papers from messieurs Crell, Meyer, Wiegleb, &c. which render the Essays more valuable. A French translation, by M. Morveau, is mentioned, which the editor has not seen. We have not been able to compare it with the present version. It is not translated by M. Morveau, but by madame P * * *, of Dijon, and is published in three volumes, duodecimo. The notes are curious and useful; which Mr. Beddoes purposes to add to his translation of the second volume of Mr. Scheele's other Essays.

- The four first Essays are on the Fluor Mineral and its Acid.
- The various steps which led to the present opinions, and the errors which once misled chemists, are carefully explained. The fluor acid was supposed, in union with water, to form flint; and this opinion is not yet wholly forsaken, though it is certainly not tenable. We have, on different occasions, suggested some doubts relating to it, and pointed out its probable origin, viz. the glass-vessels employed in the operation. In fact it is clearly shewn, in the third and fourth Essay, that the acid dissolves the glass, and carries the flint over into the receiver, where it is deposited on coming in contact with water. Yet so intimate is their union, that, in the form of air, the acid and flint pass through quicksilver, unchanged. But the appearance,

ance, during the change, when the air comes into contact with water, is so obviously that of a deposition, and so little resembling a new formation, that we always hesitated about the common opinion, even before we saw the Essay in which the cause is explained.

It is well known that we are indebted to Mr. Scheele for our knowledge of the properties of manganese. His Essay on this substance is very full and satisfactory. We shall transcribe an abstract of its different properties, in our author's own words.

‘ Manganese has a strong elective attraction for all phlogistic substances. This attraction becomes stronger, if there be a menstruum present which at the same time can unite with the phlogisticated manganese. In this situation the manganese is able to attract phlogiston more strongly than the nitrous acid does via humida. When manganese is saturated with phlogiston, it loses its black and assumes a white colour, which, however, disappears as soon as the phlogiston is separated from it again. Without combining it with phlogiston, there is no way of producing a colourless solution of manganese in any acid; and, whenever phlogiston is wanting, the solution becomes blue or red. By means of these four general qualities of manganese, discovered by a train of experiments, all its known effects are easily explicable,

Its strong attraction for phlogiston makes it the most proper substance to dephlogisticate the marine acid, which then chiefly appears in the form of air; for, when separated from phlogiston, it unites with water in a very small quantity, giving it only a taste slightly acid. Yet it should be noticed, that the loss of phlogiston is not essential to its aerial form; since muriatic acid air, made in the common way, will combine in any degree with water, and form common muriatic acid, though this union is formed slowly, and sometimes imperfectly. We shall add the properties of this dephlogisticated acid, as they are not generally known.

‘ I observed that the corks (A) became yellow within the receiver, as from aqua fortis. and the lute was likewise corroded during the distillation. (B) Paper coloured with lacmus became nearly white; all vegetable red, blue, and yellow flowers, grew likewise white in a short time; the same thing happened to green vegetables: meanwhile, the water in the vessel was changed into a weak but pure muriatic acid. (C) The former colour of the flowers, or of the green vegetables, could not be recovered either by alkalis or acids (D), expressed oils and animal fat, whether dropped into the tube, or smeared upon it, grew in a short time as tenacious as turpentine. (E) Cinnabar grew white upon the surface, and, when it was washed in water,
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a pure solution of corrosive sublimate was obtained; but sulphur was not changed; (F) vitriol of iron grew red and deliquescent; vitriol of copper and zinc remained unchanged; (G) iron filings, put into the tube, were dissolved. The solution, after being evaporated to dryness, and then distilled with the addition of some concentrated vitriolic acid, again yielded pure marine acid, in which gold remained undissolved. (H) All the metals were attacked, and, with regard to gold, it is remarkable that its solution in this dephlogisticated muriatic acid, yields, with volatile alkali, aurum fulminans. (I) When some volatile alkali, prepared from sal ammoniac and quicklime, was dropped upon the tube, a white cloud was produced, and a great number of air-bubbles were discharged from them, which, on bursting, yielded a vapour. (K) Fixed alkali was changed into common salt, which decrepitated, but did not detonate in the fire. (L) Arsenic became deliquescent in this vapour; (M) insects instantly died in it; (N) and fire was instantaneously extinguished.

In making the saccharine acid, the phlogiston which involved the acid is separated by spirit of nitre. If manganese is employed with a diluted vitriolic acid, vinegar is the result; and it must be understood, that the dilute vitriolic acid has no power on manganese without some phlogiston. This body too, though so greedy of dephlogiston, seems to decompose acid of lemons, and to change it, in part, into aerial acid. Our chemical readers will see the tendency of these facts, and we have preserved them for future application.

The effects of manganese on glass we have before mentioned: the experiments on this subject are very clear and full. Mr. Van Engestrom's remarks on the Essay relate, however, chiefly to them. We may alledge, as he has done, to account for the different results of their experiments, that it is not easy to measure the degree of heat produced by the blow-pipe; but we think, that the remarker has not attended to some minute distinctions, in Mr. Scheele's mode of making the experiments. The manganese, in vegetable mould, is now well known; and this subject also our author has examined with his usual care, but the incompressible nature of chemical facts obliges us to pass over many which occur in this Essay and the future ones. We can only give the outline of general properties.

Arsenic and its acid, whose nature Mr. Scheele first discovered, have been frequently the objects of our remarks. Two methods of separating the acid from phlogiston are described; but the first is the most convenient. The action of the acid, on different substances, is next examined: its strong attraction for phlogiston is ascertained, as well as its similarity to metallic

callic substances in other respects. The great variety of experiments, in this dissertation, fully explain the properties of this very peculiar metal.

In the following Essay the author teaches us to extract the salt of benzoin without sublimation. We shall mention his method, because, if this medicine be continued in our Dispensatories, it is more eligible than sublimation.

‘ Upon four ounces of unslacked lime pour twelve ounces of water, and, after the ebullition is over, add eight pounds more (the pound twelve ounces) of water; then put a pound of finely pounded resin of benzoin into a tinned pan, pour upon it first about six ounces of the above lime-water, mix them well together, and thus successively add the rest of the lime-water. If it be poured in all at once, it will not mix with the benzoin, which will likewise coagulate, and run together into a mass. This mixture ought to be boiled over a gentle fire for half an hour with constant agitation; then take it from the fire, let it stand quiet for an hour, in order that it may settle; pour off the supernatant limpid liquor into a glass vessel. Upon the remainder in the pan pour eight pounds more of lime-water; boil them together for half an hour, then take it from the fire and let it settle; add the supernatant liquor to the former; pour upon the residuum some more lime-water, boil it as aforesaid, and repeat the same process once more. At last, put all the residuum upon a filter, and pour hot water several times upon it. During this process, the calcareous earth combines with the acid of benzoin, and separates it from the resinous particles of this substance. A small quantity of the resin is dissolved by the lime-water, whence it acquires a yellow colour. All these yellow leys and decoctions are to be mixed together, and boiled down to two pounds, which are then to be strained into another glass vessel.’

Mr. Baumé supposed that clay was only flint, united with vitriolic acid; for, in various experiments with flint, he procured alum, and continued to obtain it as often as he repeated the experiment. Mr. Scheele, however, discovered that it arose from the corrosion of his crucibles. He found too, that common clay contained no vitriolic acid, and was not soluble in water, as that author had asserted. Some miscellaneous experiments on clay then follow; and they elucidate its curious properties. Gypsum, it seems, will not unite with clay; but it will take up a superabundant quantity of lime, and, in that state, it unites with argillaceous earth, and makes a triple salt.

The next subject of our author's enquiry is the calculus vesicæ. Mr. Scheele finds that it contains an oily acid, with gelatinous matter. In other words, it is an earthy salt, in which

which an oily or a phlogisticated acid is united with a gelatinous matter, that seems to be an animal earth. Our author thinks that it contains no lime; but that the acid is superabundant, though lime, with phosphoric acid, is actually contained in the urine. He thinks all urine (he must mean healthy) dissolves calculi, and that distilled water has the same effect. He says also that the urine of the sick contains a larger proportion both of acid and animal earth. This, by other chemists, has been particularly observed in the urine of gouty persons, during a fit.

Bergmann, in his remarks on the paper, did not find distilled water so perfect a menstruum as Scheele represented it. The white flocculi, which he says remain, are either inspissated mucus, or probably the interior membranes of the urinary passages, which we know, in such cases, are sometimes abraded. Bergmann thinks, as we always supposed, that the calculus actually contains lime; but gives us no satisfactory information on the nature of the acid. It has been said to be the acid of sugar; but without sufficient foundation. Whatever it may be, it is probably not confined to the vesica urinaria.

Of Scheele's method of preparing mercurius dulcis, in the moist way, we gave an account in reviewing Swediaur's work on venereal complaints. Its utility is obvious, for a very simple reason, that it is prepared in a method by which it exists in a finer powder than can be obtained by the most careful trituration. When we tell a chemist that it is procured without corrosive sublimate, a preparation sometimes unequal, whose chemical nature is not thoroughly understood, he will think the improvement a very material one.

The improved method of preparing the pulvis algaroth, so essential in making emetic tartar with the most certain given strength, is also useful. In this too, the corrosive sublimate is not now employed. We shall subjoin the process.

Take of powdered crude antimony one pound, powdered nitre one pound and a half, which, after being well dried and mixed, are to be detonated in an iron mortar. The hepar, obtained in this manner, is to be powdered, and a pound of it to be put into a glass vessel, on which, first a mixture of three pounds of water and fifteen ounces of vitriolic acid is to be poured, and afterwards fifteen ounces of powdered common salt are to be added; the glass vessel is then to be put in a sand-bath, and kept in digestion for twelve hours; during which period the mass is to be constantly stirred. The solution, when cool, is to be strained through linen. Upon the residuum one third of the above mentioned menstruum is to be poured, the mixture digested and strained. From this solution, when it is diluted

diluted with boiling water, the pulvis algarotti precipitates, which is to be well edulcorated and dried.'

Molybdæna and Plumbago are, at present, well known. We shall not enlarge on the analysis, though they are important; because we have had various opportunities of mentioning their results.

The fourteenth Essay is on the new Green Colour, observed in our author's Experiments on Arsenic. He informs us of the method of preparing it; and it seems to consist of copper, partly phlogisticated, added to the acid of arsenic.

The fifteenth Essay is on the Decomposition of Neutral Salts, by unslacked Lime and Iron. This is effected in particular circumstances only: which will be sufficiently obvious, from its contradicting the general laws of affinity.

The author next endeavours to determine the quantity of pure air in the atmosphere. His experiments are not decisive; but they afford comparative observations with sufficient accuracy. We know, from more certain trials, that the proportion of the dephlogisticated air in the atmosphere does not vary considerably. Our author finds a little less variation than there probably is. The usual quantity, in his opinion, amounts to $\frac{2}{3}$, almost $\frac{1}{4}$ of the whole.

Mr. Scheele's Analysis of Milk is more complete than any that we have yet seen, though much remains to be discovered. The earth of cheese is, he thinks, the true animal earth, viz. lime, with a superabundant phosphoric acid. The acid of milk contains an essential salt, animal earth, sugar of milk, a little muriated vegetable alkali, and mucilaginous matter. The acid will not rise, in any great quantity, into a receiver, so that it was procured by elective attraction; but we must suggest that, as spirit of wine was employed, we fear the acid was in some measure changed by it. The acid which comes over is a weak vinegar, that which is separated *resembles* vinegar only, but is not so. During the operation by which milk is changed to an acid, much fixed air escapes; and, by adding a spoonful of good brandy to a pint of milk, vinegar may be actually procured. The sugar of milk, treated like common sugar, with spirit of nitre, gives the saccharine acid. We mention these facts to show the great analogy between the different acids.

The tungstein we have sufficiently enlarged on, in our accounts of Bergmann, and of the analysis of the Spanish chemists; so that we shall proceed to the next subject, viz. æther.

Mr. Scheele, in endeavouring to ascertain the nature of æther, examines, with care, the different processes in which it

is made. He finds, in vitriolic and nitrous æther, traces of the several acids; but we suspect that, when he seeks for them in the several æthers, he rather composes them again from their scattered fragments. We are now certain that acids are not homogeneous bodies; and it is probable that they are decomposed in forming æther, and may appear in the subsequent experiments, from a re-union of their several parts*. In another respect, we must correct Mr. Scheele. He observes, that he could not make the acetous æther without the addition of some mineral acid, and hints his disbelief of the count de Lauragais' success. We have good authority, however, to assert, that if equal quantities of radical vinegar and spirit of wine are distilled, and the product again cohobated with the residuum; and, if this operation be repeated three times, an ætherial liquor will be carried over into the receiver. This is to be rectified with fixed alkali, and again distilled, properly separating the products of each period of the distillation. From twelve ounces of each of the ingredients, six ounces of good æther are procured; but we shall have occasion to return to this subject. With no other acid could Mr. Scheele succeed in producing æther, except only the acid of benzoïn; but, in this operation, other chemists have not had equal success. We shall not enlarge on our author's attempt to explain the nature of æther, and the principles of the operation, because we strongly suspect that his foundation is questionable, and his superstructure is not very striking or satisfactory.

Vinegar, we are told, will keep without moulding, if, previous to its being put in bottles, it be boiled over a strong fire for a quarter of a minute, and corked while hot.

In the following Essay is an account of the tinging acid by which Prussian blue is precipitated: we explained its nature in general, in the twelfth page of the present volume of our Journal; but our author has given us a more full account in a subsequent Essay, which now first appears in this translation. Mr. Scheele found that this colouring liquor, which we must still call acid, though it has no very decisive properties of an acid, may be combined with lime; and, in that case, it is more convenient for precipitations than in the usual forms; but it must be preserved with care; for all acids, even the aerial, destroy this very slight union. The tinging acid contains fixed air and phlogiston, perhaps not without other ingredients, or it might be styled a highly phlogisticated aerial acid. The volatile alkali is contained in Prussian blue; and Mr. Scheele thinks it is an ingredient in the colouring liquor.

* With a proper apparatus *much* air is observed to be absorbed during the operation of making æther.

Hence

'Hence I was disposed to believe, that the constituent parts of the colouring matter were volatile alkali, and an oily substance. In this opinion I was the more confirmed, when I saw, that, on dissolving martial vitriol in spirit of hartshorn, recently distilled, and adding to it muriatic acid, I obtained Prussian blue. I have, however, distilled oxes blood, till nothing more would pass over into the receiver, and the retort was red hot. I filtered the liquor of the receiver, in order to separate from it the empyreumatic oil, and then dissolved a little martial vitriol in it, and added a superabundant quantity of acid; and thus, likewise, obtained Prussian blue. I then resolved to make several experiments, the principal purpose of which should be, to unite the volatile alkali with some oily substance. For this purpose I distilled a mixture of concrete volatile alkali and unctuous oil; a mixture of the same alkali with animal fat; and, on another occasion, with oil of turpentine; a mixture of quicklime, sal ammoniac, and axunge; the same mixture with oil of hartshorn; likewise a mixture of potashes, sal ammoniac, and empyreumatic oil; the same mixture with axunge; but all in vain. The liquors obtained in the receiver, which consisted of phlegm, mixed with volatile alkali and oil, never yielded even the slightest mark of Prussian blue. Hence I concluded, that, though aerial acid and phlogiston are obtained every time any oil is decomposed, it at the same time contains water intimately combined with the other constituent parts, and that it is absolutely necessary that this water should be separated from them, before a perfect union of the volatile alkali can take place.'

Our author afterwards found, that no oil was required in the preparation of the colouring acid; for the volatile alkali is capable of uniting with the coaly matter, after it has been subtilized with a strong heat; and then unites so strongly with alkali of tartar, as to bear the most violent heats. This alkali, dissolved in water, he supposes to be the lixivium sanguinis. We own that this opinion is attended with many difficulties; and it must be allowed, that substances of a very different nature will throw down a coloured precipitate, or that some parts of the operation are still little understood. A convenient method of preparing the tinging acid is afterwards subjoined.

Mr. Scheele next opposes Dr. Weber's opinion, that calcareous earth contains the inflammable principle which he had set up in opposition to Dr. Black's doctrine of fixed air. Our author, by many curious facts and arguments, supports Dr. Black's opinion. The next Essay contains remarks on Mr. Wenzel's doctrine of the affinity of bodies. Several miscellaneous observations follow, which we need not enlarge on. The last Essay which we shall mention is on the resemblance between the several vegetable acids, by Dr. Crell. He endeavours to shew the connection of the native acids, viz. the acid
essential



essential salts, and that of tartar, with the acetous acid evolved by fermentation, and with the acid extracted from mucilaginous substances by spirit of nitre, viz. the saccharine. In a subsequent paper he explains the similarity between vinegar and the nitrous acid, which has long since been insisted on by Rouelle, and very lately by the French academicians; but he points out a similar resemblance, between vinegar and the vitriolic acid, which has not hitherto been mentioned. The length of our article, and the author not having made any very decisive experiments, prevent us from enlarging on the subject. On the whole, we think this volume a very useful one; and we are pleased to find, that the author means to translate the other Essays of Mr. Scheele.

An Account of the Present State of the Hebrides, and Western Coasts of Scotland. By James Anderson, LL.D. F. R. S. F. S. A. Scot. 8vo. 7s. in Boards. Robinson.

IT has long afforded matter of astonishment to neighbouring nations, that Britain, whose shores are surrounded by greater shoals of fish than those of any other country on the globe, should have so long remained inactive herself with regard to the fisheries, while others have been enriched by the treasures they have derived from this source. Their wonder is yet farther encreased, when they consider that all ranks of people in this island, for many years past, have shewed the greatest desire possible to encrease her marine, and have, therefore, warmly patronised every scheme that promised to augment the number of her seamen.—Yet the fisheries on her own coast, which are obviously better calculated for rearing seamen to her than any other measure that can be proposed, have still been suffered to remain in such a languid state, as neither to employ the industry of the people, augment the wealth of the nation, nor add to the revenue and resources of the state. To explain this seeming paradox, and to pave the way for future improvements, it will be necessary to take a retrospective view of some historical events which have had an influence on the present question.

After this very useful remark, the judicious author gives a historical induction concerning the British fisheries, in which he takes up his subject from the earliest accounts, shews the effects of some local unfortunate circumstances, which have prevented its success; and that it never can be productive of any *national* advantage, until various impediments are removed. Some of these impediments are a want of towns on the western side of Scotland, and of course a want of those conveniencies and necessaries which man, in society only,

can procure: the want of a post-office is, of itself, sufficient to prevent any trade from being carried on; for, where no information can be given, nor procured, commerce is cramped in its first principles. In a flourishing country, as we have lately observed, agriculture and commerce depend so much on each other, that it is difficult to disunite them; in a country possessing neither, it is no less difficult to find which is most proper first to encourage, for they ought to begin together. If this beginning is not made with a due attention to the nature of the country, and the character of the people, it must ever be abortive.

Dr. Anderson is thoroughly sensible of these principles, and gives many incontrovertible proofs of the impossibility of our ever making a national advantage of that profusion of fish, with which the shores of Scotland abound, unless the western side of that country, their chief resort, has villages and towns, and those towns an easy correspondence with each other. In fact, every attempt towards improvement must begin on an extensive scale, and be pursued with spirit, and a proper view towards the chief defects. The great inconveniencies which the inhabitants of this district, and of the Western Isles, experience from the salt duties, as they are at present established, must be added to the more general causes, and must be greatly lessened, or totally altered.

The author observes, that it

‘ It is many years since the obvious importance of these neglected regions, attracted the particular notice of the writer of this performance; and he published his thoughts on that subject in the year 1777, in a treatise, intitled, *Observations on the Means of exciting a Spirit of National Industry, &c.*—He once more touched on this subject, in an essay he offered to the public in the end of the year 1780, intled, *The Interest of Great Britain with Respect to her American Colonies considered*; in which he had occasion to show, that the nation had in vain expected, for some centuries past, to derive advantages from its transatlantic dominions, which it never did, and never could obtain, while it neglected treasures of a more valuable kind, that long had been in her sole possession.—The subject once more obtruded itself upon him, on the close of the late war, which he considered as a most favourable opportunity for bringing this subject under the public notice: he therefore compiled a treatise, intitled, *A Proposal for establishing the Northern British Fisheries*; in which the Circumstances that have hitherto frustrated every Attempt to establish these Fisheries are investigated, and Measures suggested by which these Obstructions may be removed, &c. This treatise was printed for the perusal of his friends; but was not published, as he considered himself not sufficiently instructed in all particulars relating to it,

it, never having been on the coasts, where the fisheries can be chiefly carried on, in person; and therefore justly suspecting that he might be unacquainted with many local facts, which it was of much importance should be known, before a decided judgment on this subject could be formed. This treatise was printed in the year 1783; and having attracted the notice of some public-spirited men, the writer was applied to in the beginning of the year 1784, to see if he would incline to undertake a voyage along those coasts, with a view to obtain the information on that subject, which he seemed to think was of so much importance. To this proposal he readily assented; and having obtained an order from the Treasury for one of the king's cutters to attend him on that expedition, he proceeded on it with alacrity. The following Report to the Lords of the Treasury, with the illustrations that accompany it, contain an abstract of the observations he there made.'

How far the Report may have been affected, by the author not sailing till much of the summer was over, we know not; but it seems probable, that Dr. Anderson was too late for some circumstances which he must have wished to have seen with his own eyes. The information, however, which he procured from the best authorities, leaves no doubt on the mind of the reader, as we hope it will not on those to whom the Report was made, but that the Scottish fisheries are worthy of every possible attention, and will richly reward government for any expence that may be required to improve them.

The facts recorded in this volume do not only relate to the fisheries, but point out many other sources of improvement, in the Western islands; for these, we must refer to the work, and its various illustrations, since detached facts cannot easily be abridged. We shall select only, as a specimen of his remarks, the following curious observations on the herring.

'The herring is a delicate fish, which is killed by a very small degree of violence. Whenever it is taken out of the water, even though it seems to have received no hurt, it gives a small squeak, and immediately expires; and though it be thrown instantly back into the water, it never recovers—Hence arises the proverb, as dead as a herring.

'No conjecture can be made relating to its food. It seems to be nourished by some substance that abounds every where in the sea-water in prodigious quantities, though too minute for observation.—Were it not every where present in the water, the shoals are so great, that those which come last must suffer for want of food, and become lean. This is never taken notice of by fishermen. It is observed, that the stomach contains only a quantity of slimy matter, unless it be very near the spawning-time, when a few small fish are sometimes found in the stomach:

They are then called foul fish, being more full of blood than at other seasons: they never take bait but when in this state, and very seldom then.

Some fanciful people, in order to make the history of their migrations complete, describe them as being led forward by a leader who directs their course, who has been called their king. No such thing is even believed by any of the fishermen.

When a great body of herrings are in the water, they can be distinctly perceived by the smell, as I myself frequently experienced.

They sometimes swim very near the surface, and sometimes at a greater depth, as has been said; but the circumstances that occasion the one or the other have not been observed. It does not depend on the season of the year, nor, by what I could learn, on any observed peculiarity of weather.

At times they seem to take pleasure in rising to the surface of the water, and putting up their noses, and instantly drawing back. This occasions a little pattering noise, like the sound of a few large drops of rain on the water; which is denominated by the natives on the shores they frequent, the play of herrings. It is most usually observed in a still calm evening; and at these times, they are thought not to enter readily into the nets, and therefore it is not thought a favourable indication of the success of the fishery for that night.

But the most wonderful peculiarity relating to the œconomy of that little fish, was one that I never had an opportunity of observing myself, but which I was assured was a fact, by every person acquainted with the fisheries who spoke with me on that subject. I therefore tell it to the reader as I had it, without contradicting or confirming it, though I rather suspect the opinion has taken its rise from inaccurate observation—It is, say they, a certain fact, that at particular times, in those lochs where herrings abound, a strong smart sound is heard, like the report of a pistol when fired. This sound, it is supposed, is in some inconceivable way produced by the herrings themselves, and is always accounted a certain proof that they are immediately to leave that place. When the sound is heard, or supposed to be heard, it is said the herrings have cracked; and, in that case, it never fails but that the whole are gone before next day. Whatever truth may be in this, there can be no doubt but the herrings frequently withdraw from any loch in a very short time, and leave no vestige of them behind.

Our author, in this part of his work, opposes the opinion of their migration, from numerous observations, and gives a very particular account of the method of catching them.

The Report contains some very important remarks, and deserves great attention from those to whom those whom the conduct of the undertaking is entrusted.

The

The Necessity of founding Villages contiguous to Harbours, for the effectual Establishment of Fisheries on the West Coast of Scotland and the Hebrides. 8vo. 1s. Cadell.

A Plan so obvious, as to catch the fish which swim round the western coasts ; one of so great apparent utility, and seemingly so easy to execute, has been retarded by various obstacles. But the obstacles are inseparable from the nature of the scheme, and arise from the political situation, and the state of society on those coasts. They are not seen on a transient view ; but, when examined closely, swell to an alarming magnitude. It is with pleasure, however, we announce, that there is a plan in agitation, with the approbation of the committee of the house of commons, for founding villages on the west coasts of Scotland, and its adjacent islands, from a fund to be raised by subscription, and the subscribers are to be incorporated by act of Parliament. This work is designed to assist the plan ; and we hope it will effectually promote it. We have already observed, that the necessity of villages, joined to a ready and quick communication, is so obvious, that no step will probably be effectual without such establishment. We approve, therefore, highly of the plan ; and hope that a design so truly patriotic will meet with suitable encouragement. The pamphlet before us is written with remarkable candour and perspicuity, and is well adapted for its purpose.

On reviewing Mr. Fall's remarks, we noticed a little partiality for some plans, arising from his peculiar local situation. Those which are selected in the work before us chiefly relate to the circumstances which are improper for an establishment of the western coasts.

Observations on the Acute Dysentery, with the Design of illustrating its Causes and Treatment. By John Rollo, M. D. 8vo. 1s. 6d. Dilly.

DR. Rollo is an acute observer, and a diligent enquirer. His opinion of the cause of dysentery, if not quite new, is, in some respects, different from the former systems. He thinks it depends on fever ; and that, to produce this form of it, the causes of fever are modified by the concurrence of cold or moisture, which usually affect, even when unaccompanied, the bowels in some degree. The first effect is a spasmodic griping, with a discharge of blood or mucus from the colon and rectum. The second, an erysipelatous inflammation of the great intestines, extending downwards to the rectum, and up-

wards to the ileum, duodenum, stomach, and fauces, ultimately proving fatal, by inducing gangrene. This is the acute form; but, in the chronic, he seems to think this inflammation induces a preternatural tenderness, perhaps by destroying the villous coat, or little ulcers, difficult to heal. His opinion is supported by the dissection of *recent* cases, which he thinks has hitherto been too much neglected. These show, that the bowels are in an inflamed state; and that the inflammation is not phlogistic, requires no proof. We own, that the author has rendered his system extremely probable.

In some other respects, however, we must differ. He seems to think, that dysentery does not arise from specific contagion, and that it is not contagious. The latter is a dangerous opinion; for it leads us to neglect those cautions which may become highly necessary. But we must add the author's candid remarks. After he has hinted a doubt whether the disease produced by putrid fæces, &c. may not be of a different kind, and brought some facts from Van Swieten and Sir John Pringle, he adds,

‘ By any ambiguity we express on this subject, we only wish, that the facts relating to it may be more carefully inspected. The facts, as they are presently explained by the most respectable medical characters, are in favour of the dysentery becoming, in certain circumstances, contagious. However, we are inclined to think the subject merits a farther investigation.

‘ The dysentery has been shewn to be produced by marsh effluvium, the common cause of intermitting and remitting fevers, only in this disease it is necessarily connected with cold and moisture. The affinity of the dysentery to the intermitting and remitting fevers is indisputable. Therefore it may be naturally imagined, that these fevers, as well as the dysentery, may become, in similar circumstances, contagious.

‘ Have the intermitting and remitting fevers, as arising from marsh effluvium, become in any situation contagious?’

It is in some degree necessary to give our sentiments on this subject, since we are remotely involved in it, by the author having rested his first step on our opinions.

We observed, in our Fifty-sixth Volume, p. 13, that ‘ every disease which arises from contagion, appears to have been the product of a particular country, and to have been carried only, by infection, to others.’ But it does not follow, that infection is confined to *specific* contagion, that is, those contagions which infallibly produce the same disease, and exert their influence once only during an individual's life. The latter circumstance

cumstance must, however, be received with limitation; for it is not strictly true of all contagions which may be termed specific. Dysentery, we think, arises from occasional causes, not from the contagion which we have been speaking of; but our author does not seem to suspect, that there are contagions of other kinds, which do not so certainly produce the several diseases as specific ones, yet really exist, and should be guarded against. The influenza was very probably, in some instances, contagious; putrid fevers are so, and the remitting fevers very certainly infectious, in particular circumstances. The line to be drawn, respecting fevers, is this: where the fluids are morbidly affected, the disease may be communicated, but not otherwise. Hence intermittents, though of the same kind as remittents, cured with the same remedies, and frequently ending in them, are pretty certainly not infectious; nor indeed are the remittents, till they assume a malignant type. This is the line too that we should draw for dysentery. In the earlier states, when it is only a mode of fever, it is probably not infectious: in the inflammatory state, when the secretions are generally increased, and sometimes vitiated, it certainly may be communicated. In many cases, we think accidental fever allows the contagion, before received, an opportunity to exert its deleterious influence; and this effect it produces, in common with every other debilitating power. If Linnæus is right, in thinking the disease arises from insects, it must certainly be in every state infectious*.

Dr. Rollo's practice is very efficacious and judicious. His combination of emetic tartar with opium, oil, and wax, seems a powerful and well adapted remedy. In other respects, he does not very essentially differ from the established practice; but he follows it in its best and most decisive form.

On the whole, we think his pamphlet an useful and instructive one: we wish also, that we could praise his language; but it is greatly deformed with provincial expressions. Why will not authors, who are so well able to instruct, endeavour to please, or at least to avoid disgusting their readers?

Memoirs of the Literary and Philosophical Society of Manchester.
(Concluded, from p. 184.)

IN our examination of the first volume of these Memoirs, we continued to admire the choice of the subjects, as they might lead to an improving instructive conversation; but we

* Vide *Amœnitates Academicæ*, vol. v.

had also additional reasons to think many of the Memoirs of too little importance for publication. We need not repeat expressions of regard for similar institutions, or for many of the Members of the Manchester Society; nor will they, we hope, misinterpret our free opinion of their collection, or suspect us of the least disrespect for individuals: we shall, in examining the volume before us, pursue our former method.

Nº I. A brief Comparison of some of the principal Arguments in Favour of public and private Education. By Thomas Barnes, D. D.

II. A Plan for the Improvement and Extension of Liberal Education in Manchester. By the same.

III. Proposals for establishing in Manchester a Plan of Liberal Education for young Men designed for civil and active Life, whether in Trade, or in any of the Professions. By the same.—In the first of these articles this very respectable author considers the question of the preference of public or private schools, with a little partiality to the latter. At last, however, he chuses the middle path, viz. a school of that size which will not check emulation, and one not so large, but that all the boys may be under the master's eye; in which the aspiring genius may not be compelled to follow the slower paces of the dull one. The second and third are very useful essays, and have been attended with considerable advantages. Dr. Barnes proposes an institution, which has since been successfully carried into execution, as an intermediate step between the school and the college, calculated not only for professional men, but those to be engaged in commercial pursuits; designed not only to assist the scholar, but to enlarge the views of the merchant, and at least to afford him, in his occasional retirement from business, a refuge in himself, a source of amusement, or perhaps opportunities of instructing the rest of mankind. The regulations of the college are subjoined, and they seem excellent; nor can we see an objection to the plan, unless it may be fastidiously alledged, that it enlarges the surface, rather than the depths of science, and may infuse that dangerous spirit, 'a little learning.' But this objection can exist only in a formidable shape under injudicious conduct: it should be the object of the professors to awaken curiosity, not to gratify it; and, when they open an extensive landscape, to inform their hearers of the great necessity of the repeated examination of particular parts, if they would reap any advantage from the prospect. These examinations must be the business of the future life. We can add nothing to the Society's present designs; but, while we express our fullest approbation, may suggest

suggest a wish for a more particular publication of their plan, and the syllabus of each course.

IV. On Orichalcum. By the Right Rev. Richard Watson, D. D. F. R. S. &c. &c. Lord Bishop of Landaff.—This article has been examined in the fourth volume of the bishop's Essays.

V. Remarks on the Origin of Vegetable Fixed Alkali, with some collateral Observations on Nitre. By M. Wall, M. D.

VI. Some Account of the Life and Writings of the late Professor Gregory, M. D. F. R. S. By James Johnstone, M. D.

VII. Remarks on the Knowledge of the Ancients respecting Glafs. By Dr. Falconer of Bath.

VIII. On the different Quantities of Rain which fall at different Heights over the same Spot of Ground ; with a Letter from Benjamin Franklin, LL. D. By Thomas Percival, M. D.

IX. Speculations on the perceptive Power of Vegetables. By Thomas Percival, M. D.

X. An experimental Inquiry into the Cause of the permanent Colours of Opake Bodies. By Edward Hufsey Delaval, F. R. S. of the Royal Societies of Upsal and Gottingen, of the Institute of Bologna, &c.—This Inquiry is an important one, and well conducted: it is a valuable supplement to the author's former work, and extends our knowledge on this intricate subject. It is not quite free from imperfections; but the accuracy of the principal conclusions is, we think, unimpeachable. We shall not look for trifling blemishes; but cannot avoid hinting to the author, that the advancement of arts and manufactures is not so strictly connected with that of science as he supposes; nor is the opinion so properly introduced on a subject, in which we were certainly excelled, when the science of optics was little known. The present object is to examine those properties of permanently coloured substances, by which they operate on the rays of light in producing colours; and, in the course of the enquiry, he shows that colours are produced by transmitted, not by reflected light; that vegetable, animal, and mineral coloured matter, is transparent; and that in bodies, distinguished by various tints, the light is reflected from opake white particles, through transparent colouring. It is impossible to describe the experiments, or the consequences deduced from them, in this place. The former are in general accurate and decisive, the latter clear and natural. The author differs in his principal opinion from sir Isaac Newton, but he derives great assistance from the facts related in the 'Optics,' which are of more consequence, as the author could not be biassed by the opinions of Mr. Delaval.

‘ From

‘ From all these premises (viz. various experiments) it appears that the earth, which forms the solid substance of plants, is white; that it is separable from the colouring matter by several means; that whenever it is either pure and unmixed, or diffused through transparent colourless media, it exhibits its whiteness; and is the only vegetable matter which is endued with a reflective power.

‘ I have hitherto described several cases, in which the white matter of plants may be brought to view, by the removal of the coloured particles which covered it. Its exposure may also be effected by other means.

‘ It is well known that the vapour of burning sulphur whitens red roses. This effect is generally attributed to the vitriolic acid arising from the sulphur. But such an explanation is certainly erroneous, because the vitriolic acid, applied to the roses thus whitened, restores their red colour.

‘ As sulphur is composed only of phlogiston and vitriolic acid, and as the whiteness is not caused by the acid, it is evident that it is effected by the phlogiston.

‘ I exposed several sorts of red and purple flowers to the phlogiston, disengaged from *hepar sulphuris* decomposed by an acid, and to other phlogistic vapours, all of which whitened the flowers. I restored the red colour of each of these, by applying to them indiscriminately, either vegetable or mineral acids.

‘ It appears, from these experiments, that the colouring matter of the flowers is not discharged or removed, but only dissolved, by the phlogiston; and thereby divided into particles too minute to exhibit any colour. In this state, together with the vegetable juice in which they are diffused, they form a colourless transparent covering, through which the white matter of the flowers is seen untinged.’

We have selected this passage as a specimen of the new and important views which this paper opens to us; and, though our readers must thus leap to the conclusion, without an examination of the experiments, they may, we think, rest on their accuracy. It is not, indeed, quite clear, that, in whitening substances by sulphur, the colouring particles, which we own ‘ consist principally of inflammable matter,’ are dissolved, and rendered transparent by the phlogiston*. It is equally probable, and consistent with the other facts, that they form a *tertium quid*, incapable of transmitting any colour. Manganese and arsenic, with a certain portion of phlogiston, are white; with different portions they are coloured; and, if the sulphuring process is injudiciously conducted, or carried too

* Dephlogisticated marine acid, which *dissolves* the phlogiston, destroys vegetable colours (Schele). See page 330 of this Number.

far, the clear whiteness is frequently destroyed. In either case, the action of acids, by detracting the phlogiston, will restore the colour. The author properly observes, that the action of light has a similar effect; and he might have added, that both methods, viz. sulphuring and exposure to light, if long continued, or frequently repeated, will injure the texture of the substance. In pursuit, however, of his opinion, Mr. Delaval produces some curious facts, and materially elucidates some of the operations of chemistry.

‘Red flowers are whitened by the electric spark, of whose inflammable nature we cannot entertain the least doubt. For the spark itself is a bright flame, and it yields the same smell, which all other phlogistic matters impart.

‘The electric spark in like manner changes the blue infusion of turnsol to red. The effects which it produces on the turnsol, and on red flowers, do not differ from each other, except in degree only. For, when vegetable matter is dissolved, it is changed from blue to red; and when it is farther dissolved, it is divided into particles too minute to exhibit any colour.’

Yet, on the whole, his doctrine is to be received with some limitations. When, for instance, he thinks the effects of fixed air in mixture, are those of a phlogistic, rather than an acid substance, he is, in our opinion, less successful. The qualities of acid and phlogistic are indeed so often combined, that phlogiston, by the best chemists, has been styled an acid; but, that fixed air does not act as an acid, our author argues from its increasing the tendency of alkalies to crystallization, without changing them to neutrals (a fact not sufficiently examined in this article), its tendency to escape from water, and its affinity with air. Much of this kind may be alledged without producing conviction; for we know that, if fixed air be an acid, it is a phlogisticated one; and it is not easy, without many other experiments, to ascertain how many of its effects are owing to one ingredient, and how many to the other. Alkaline air is also a phlogisticated alkali: the concrete salt deflagrates with nitre; the air revives lead, and produces other phlogistic effects; yet we know it to be an alkaline substance, and cannot look on it as pure phlogiston, for it may be saturated with other airs, and produce a neutral, which cannot assume a gaseous form. The author proceeds in his enquiry into the nature of fixed air, and thinks that it differs from phlogisticated air, by its containing an aqueous principle; but, on this subject, we cannot follow him. He then resumes his principal object, and shows, that, in animal and mineral bodies, there is an opaque white substance, from whose reflective powers the transparent coloured matters shine with their

their peculiar hues. His facts, in this Inquiry, are well chosen, and his arguments are very ingenious.

He next examines the nature of semi-pellucid coloured substances, which appear of one colour, when viewed by incident light, and of another when viewed by transmitted light. In these, as in opaque coloured bodies, he endeavours to show that no reflection is made by the coloured matter, but by white particles only. The observations on the colours of the atmosphere and the sea are very curious; but they are too long for an extract. Nor can we examine our author's observations, in the manner they deserve, within the necessary limits; we must, therefore, be contented with extracting the following 'practical application.'

'The art of dying consists, principally, in covering white substances, from which light is strongly reflected, with transparent coloured media, which, according to their several colours, transmit, more or less copiously, the several rays reflected from the white substances.

'The transparent coloured media themselves reflect no light: and it is evident that, if they yielded their colours by reflecting, instead of transmitting, the rays, the whiteness, or colour of the ground on which they are applied, would not anywise alter, or affect, the colours which they exhibit.

'Such an erroneous conception of the principles of the art, cannot fail greatly to obstruct its progress and improvement. All colouring matter is black, when viewed by incident light; and all substances incline to blackness, in proportion as they are copiously stored with tinging particles.

'The artist, therefore, who confines his inquiries to substances which reflect the light, cannot be successful in his endeavours to discover new dying materials: and, if he is led, by experience, to extend his researches to other substances, his practice contradicts his principles; by which his views are obscured, and bounded within the narrow limits of accidental observation.'

XI. Experiments and Observations on Ferments, and Fermentation; by which a Mode of exciting Fermentation in Malt Liquors, without the Aid of Yeast, is pointed out; with an Attempt to form a new Theory of that Process. By Thomas Henry, F. R. S.—This new ferment is fixed air; and the theory of fermentation, that the process consists in the separation of air of this kind, a decomposition, and a new arrangement of the different ingredients. The opinion is of consequence; but the author will excuse us in thinking this article a hint only for future experiments. At present, it is confessedly in an imperfect state; and even the experiments which seem most decisive, should certainly be repeated in a greater variety of circumstances. He is not aware that, in this operation, much air is absorbed from the atmosphere.

XII. On

XII. On the Origin of Alphabetical Characters. By Gilbert Wakefield. B. A.

XIII. An Essay on Crimes and Punishments. By the Rev. William Turner.—The thirteenth article, though not extended very far, should not be passed over without commendation, for the clearness of the language, and the humanity of the author's design. The first object is to point out an essential difference between moral and political transgressions, with their respective punishments. The second, to offer some remarks on the proportion of punishments to offences. On this subject, we have lately enlarged with sufficient attention. We need not perhaps observe, that Mr. Turner adopts the less severe methods.

XIV. On the Pursuits of Experimental Philosophy. By Thomas Percival, M. D. F. R. S.

XV. Observations on the Influence of Fixed Air on Vegetation; and on the probable Cause of the Difference in the Results of various Experiments made on that Subject. In a Letter from Mr. Thomas Henry, F. R. S. to Thomas Percival, M. D. F. R. S.—The most striking part of the former article, which seems to have occasioned the latter, is the effect of fixed air on vegetation. From many different experiments it is now ascertained, that fixed air, properly applied, not in too great quantity, really favours the growth of plants. The greater part of Dr. Percival's speculations is on the uncertain events of experiments, though repeated with the greatest care.

XVI. Observations on a Thigh Bone of uncommon Length. By Charles White, Esq. F. R. S.

XVII. Meteorological Imaginations and Conjectures. By Benjamin Franklin, LL. D. F. R. S.

XVIII. A short account of an Excursion through the subterraneous Cavern at Paris. By Mr. Thomas White, Member of the Royal Medical Society of Edinburgh, &c.—

‘ For the first building of Paris, it was necessary to get the stone in the environs, and the consumption of it was very considerable. As Paris was enlarged, the suburbs were insensibly built on the ancient quarries, so that, all that you see without is essentially wanting in the earth, for the foundation of the city; hence proceed the frightful cavities, which are at this time found under the houses in several quarters. They stand upon abysses. It would not require a very violent shock to throw back the stones to the place, from whence they have been raised with so much difficulty. Eight men being swallowed up in a gulph one hundred and fifty feet deep, and some other less known accidents, excited at length the vigilance of the police and the government, and, in fact, the buildings of several quarters have been privately propped up; and by this means,

means, a support given to these obscure subterraneous places, which they before wanted.

‘ All the suburbs of St. James’s Harp-street, and even the street of Tournon, stand upon the ancient quarries ; and pillars have been erected to support the weight of the houses. What a subject for reflections, in considering this great city formed, and supported by means absolutely contrary ! These towers, these steeples, the arched roofs of these temples, are so many signs to tell the eye, that we now see in the air, is wanting under our feet.’

This description is a translation from M. Mercier’s *Tableau de Paris* ; but we ought to add, that Mr. White’s account is very interesting and entertaining.

XIX. A Description of a New Instrument for measuring the Specific Gravity of Bodies. By Mr. William Nicholson. —This instrument seems well adapted to the author’s purpose ; we cannot enlarge on it, because it would not be intelligible without the plate.

XX. Memoirs of the late Dr. Bell. By James Currie, M. D.

XXI. A Translation of Dr. Bell’s Thesis, *de Physiologia Plantarum*. By James Currie, M. D.—These eulogies are a pleasing part of the Manchester collection. Dr. Currie has performed his task with great propriety ; and Dr. Bell’s dissertation deserved a translation. It is a neat account of what has been hitherto delivered by authors and professors, with some improvements. Dr. Bell states his questions with precision, and his remarks on them are clear and determinate. He is a strong advocate for the irritability of vegetables, and imputes many of their motions to this cause : he probably goes too far, when he ascribes feeling and perception to them. Both the regular and occasional motions of the *æschynomene* movens, and of the *dionæa muscipula*, the strong instances adduced to prove a perceptive power, are, pretty clearly, necessary effects of a peculiar construction, in consequence of irritation. That we may not be misunderstood, it is necessary to observe, that we see no foundation for carrying the analogy into the animal kingdom ; various arguments, on the contrary, oppose it.

XXII. Some Observations on the Phenomena which take Place between Oil and Water. By Martin Wall, M. D.

XXIII. Facts and Queries relative to Attraction and Repulsion. By Thomas Percival, M. D.

XXIV. Extracts of Two Letters from Dr. Wall of Oxford to Dr. Percival, in Reply to the foregoing Queries concerning Attraction and Repulsion.—These articles contain reflections on attraction and repulsion. Dr. Wall seems to think, that apparent repulsion is sometimes only elective attraction. Dr.
Percival

Percival argues for the existence of each distinct power. We meet with nothing to tempt us to enlarge on the subject, or any thing of sufficient interest for an extract.

XXV. On the voluntary Power which the Mind is able to exercise over bodily Sensation. By Thomas Barnes, D. D.—We are always pleased with Dr. Barnes, even when we are led to differ from him. Perhaps, after all, the dispute may be about words; but we suspect that he is inaccurate, in thinking that the apparent torpor, the temporary insensibility of the body, while the mind is strongly agitated, are owing to the *power* of the mind *over* bodily sensation. Sensation, strictly speaking, is in the mind; for pain cannot exist in a lacerated or wounded part, since it depends on the nervous continuity between it and the immaterial principle. It is, therefore, an effect in the mind, in consequence of a change in the body; but, if the mind be not susceptible of this effect, no pain can follow. When Dr. Barnes adds to his definition, ‘independently of the will,’ he seems to have produced the difficulty in which he is entangled. In a perfect animal body, the perception is a necessary unavoidable consequence of the impression; so that the volition, which is a power of the mind, is improperly introduced, and it is the only circumstance which leads us to think any activity in the mind itself is necessary to sensation. This has certainly occasioned our author to ask, ‘if the mind has a direct and immediate power of diminishing sensation by mere volition?’ We can answer, decisively, that it has not; and the author’s instances only prove that, as we have said, when the mind is not, from its nature, sensible of the perception, the effect does not follow. The old soldier, in the operation, felt with the same severity as another; but his resolution prevented him from complaining; women, who have very great passive fortitude, often behave, in similar situations, with equal heroism. We must, however, conclude, on the whole, that this article by no means disgraces its author.

XXVI. A Narrative of the Sufferings of a Collier, who was confined more than Seven Days, without Sustenance, and exposed to the Choak-damp in a Coal-Pit not far from Manchester: with Observations on the Effects of Famine; on the Means of alleviating them; and on the Action of foul Air on the Human Body. By Thomas Percival, M. D.—The situation of this poor man was very affecting; but we have nothing very interesting to relate in consequence of it. He died a few hours after he was taken out of the pit, and could not relate any of his sensations during the time he was in it. He thought
that

that he had been confined two days only, but that they were very long ones. The following relation is curious.

‘ I have been informed, by a young physician from Geneva, that, when he was a student at Montpelier, he fasted three nights and four days, with no other refreshment than a pint of water daily. His hunger was keen, but never painful, during the first and second days of his abstinence; and the two following days he perceived only a faintness, when he attempted either bodily or mental exertion: a sense of coldness was diffused over his whole frame, but more particularly affected the extremities. His mind was in a very unusual state of pusillanimity; and he experienced a great tendency to tears, whenever he recollected the circumstance which had been the occasion of his fasting. During the whole period, the alvine excretions were suppressed, but not those by the kidney: and at the close of it, his skin became tinged with a shade of yellow. The first food he took was veal broth, which had something of an intoxicating effect, producing a glow of warmth, and raising his spirits, so as to render him ashamed of his despondency.’

Dr. Percival then adduces some observations relating to the effects of famine, and the most probable means of lessening the danger of it, by carrying very nutritive substances in small bulk to sea; or to diminish its effects, for some time, even without food. He concludes with remarks on mephytis, which he thinks chiefly acts on the nervous system; and, as with all poisons of that kind, its danger will be lessened, if slowly and gradually applied. There is much reason to think, that the first effect is really on the nervous system; but it must be also a powerful poison, by preventing the salutary discharge of phlogiston from the lungs, though this is a secondary effect, and not sensible till after some time.

XXVII. Result of some Observations made by Benjamin Rush, M. D. Professor of Chemistry in the University of Philadelphia, during his Attendance as Physician-General of the Military Hospitals of the United States in the late War.—Many of these Observations are common: we shall select two, which are of the less usual kind.

‘ In all those cases where the contagion was received, cold seldom failed to render it active. Whenever an hospital was removed in winter, one half of the patients generally sickened in the way, or soon after their arrival at the place to which they were sent.

‘ The army, when it lay in tents, was always more sickly than when it lay in the open air: it was always more healthy when kept in motion than when it lay in an encampment.’

XXVIII. Containing Extracts from the Minutes of the Society, relative to the Delivery of the Gold and Silver Medals

to Edward Hussey Delaval, Esq. F. R. S. and Mr. Thomas Henry, Junior: with

XXIX. The President's Address to the Chair upon that Occasion.—These minutes we need not enlarge on. The gold medal was properly delivered to Mr. Delaval; the silver one to Mr. Henry. But we must observe, that the president's address is dignified and proper.—Since we have now examined those parts of the volume which we have thought to be most worthy of attention, we shall only add, that, as we have commended an institution so useful and salutary, both in its design and its consequences, we have a wish to render it more completely respectable. Let us then earnestly recommend to their committees, a little more care in the selection of papers; to be less influenced by connexions and friendship; to look on themselves no less the guardians of their brethren's fame, than of the splendor and stability of the Society. It is not by the mass that the discerning eye will estimate its fame; for every imperfect representation, every mistaken fact, will detract from the merit of what is really interesting and valuable. With this advice we shall take our leave, expressing an earnest wish, that we may again meet in better and more prosperous circumstances.

A Treatise on the Maritime Laws of Rhodes. By Alexander C. Schomberg, M. A. 8vo. 2s. Rivington.

THIS Treatise was, at first, intended as one of the illustrations of the Chronological View of the Roman Law; but, as the materials were too copious, and the work exceeded the limits designed for it, the author has now published it as a separate tract. Mr. Schomberg, as usual, displays his learning and his knowledge of the civil law. He enquires into the origin of this famous maritime code, pursues its different fates, and examines its operation in various situations, till he finds its scattered fragments in the Pandects. He traces the new phoenix, from its ashes, in the Amalfitan Table; the *Consolato del Mare*; the Laws of Oleron, enacted by our first Richard, on his return from the Holy Land; the Wisbuy Code; and the compilation of the two last, by the authority of the Hanse towns. In the course of his enquiry, many collateral circumstances of curiosity and use are examined; what relates to the Roman trade and marine; the different situations of Rhodes, in which the code was first composed; one of the fragments of the Rhodian laws, more certainly a part of the ancient system, viz. that which respects the 'ejection' of goods

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to lighten the ship; the connexion of these laws with the modern practice; the different claims to the sovereignty of the seas; and the jurisdiction, as well as the constitution of the court of admiralty.

The origin of the Rhodian laws is confessedly uncertain. The Rhodians were certainly not the earliest navigators. Their great splendor, in this view, was nearly about the age of Homer; but, at least five hundred years previous to that period, the Cretans were celebrated for their skill in navigation; near three hundred years after them, we hear of the Lydians; and almost two hundred years after that time, the Thracians were celebrated as mariners.

‘But though the Rhodians cannot claim the honour of being the earliest navigators, they have an undoubted right to a much nobler praise, that of being the first legislators of the sea: for there is nothing upon record which can lead us to suppose any of those maritime powers which preceded them had ever appeared in that character. There is, therefore, great truth as well as spirit in the assertion of an ancient jurist—“That to erect as it were a throne for justice, on the ocean, and to teach her to regulate the transactions of man on that unstable element, with the same firmness and precision as on land, was a grand and an original idea of the Rhodians.” It is impossible to fix, with any certainty, the precise time when these celebrated sea-laws were first compiled. Harmenopolus of Thessalonica, a juridical writer of the twelfth century, gives them the pre-eminence over all others as well in antiquity as authority, but does not tell us at what period they first appeared. The most general opinion seems to be that they were probably compiled about nine centuries before the Christian æra, or soon after that time, when, as we have already seen, Rhodes first acquired the superiority on the seas, and maintained it for the space of twenty-four years. There are some indeed who have called in question their great antiquity, attributing them to that age when the city of Rhodes was founded; which, according to Strabo, was in the days of the administration of Pericles at Athens, consequently five centuries later than is usually conceived. But the geographer, in the very chapter which contains this information, seems to have been aware that a conjecture of this sort might arise, and therefore warns his readers not to date the naval skill of the Rhodians from this event; for, says he, they were very famous as a sea-faring people, even before the institution of the Olympiads. After all, as there is no express authority for the date of these laws, this part of their history must rest solely upon conjecture; nor can we boast of much accurate information on a point of greater moment, the time of their reception at Rome, and the degree of influence they held there; though here indeed our authorities are somewhat more clear and satisfactory.’

The

The first public introduction of these laws into Rome is placed in the reign of Tiberius Claudius, in the consulship of Q. Aterius Antoninus, and D. Junius Silanus, A.D. 55; though different parts of the code were certainly known, and observed in Rome, before that period. Their influence seems to have been for a long time merely conditional, and to have depended on a renewal of the imperial sanction, till they were incorporated in the Pandects, and scattered in the different parts of that immense compilation, involved in the doubts, and obscured by the commentaries of different jurists: as a separate body of law they exist no longer.

It is a little remarkable, among the various interpretations, and we may add, the very trifling remarks of some commentators on the following passage, that our author has not enlarged on the noble one, which the pointing justifies, and the great character of the emperor renders probably just.

‘ It is a rescript of Antoninus Pius, in answer to a petition of Eudæmon, a merchant of Nicomedia, to that emperor, wherein he states, that being shipwrecked among the Cyclades, his property was seized upon by the officers of revenue. He addresses the emperor by the title of sovereign, *κυριος*, and he is answered in the true spirit of a Roman, who considered the world as one country, of which Rome was the princial city. *Εγω μεν τε κοσμος κυριος ο δε νομος της θαλασσης. Τω νομω των Ροδιων κρινεσθω τω ναυτικω.* “ I am sovereign of the world, it is true, nevertheless controversies at sea must be determined by the maritime laws of Rhodes, except (as he adds) in cases where they contradict our own laws.”

An obvious interpretation certainly is, ‘ I am lord of the world, but the sea is under the jurisdiction of the laws. Let the cause be determined by the naval code of Rhodes.’ The antithesis is pointed and beautiful. The subsequent part, so far from lessening the credit of the Rhodian laws at Rome, strongly confirms it; nor can the emperor, who establishes the authority of a code, and decides by it, be supposed to give up the dominion of the sea. Petit suggests *ανεμος*, instead of *νομος*; but if this reading were the true one, Antonine should have referred to Æolus for the decision: it destroys the whole force and meaning of the passage.

We shall select the most interesting part of our author’s observations on the sovereignty of the sea: we mean the most interesting to ourselves.

‘ For what regards our own country in this dispute, it may be proved, by many ancient records, and by a series of undeniable evidence, brought down through various ages, that the kings of England did very early claim to be, and were acknow-

ledged sovereigns of the sea, so much of it at least, as is the object of the controversy. 4 Instit. 142. Selden. Mare Clausum. c. 27. For I apprehend the warmest advocates for exclusive privilege thereon, never attempted to extend it either to the Atlantic, or the Southern Ocean. Thus king Edgar is said *quatuor maria vindicare*, and sir J. Burroughs cites a record in the Tower, having for its title "Of the Sovereignty of the English Seas, and the Office of Admiral thereon." Sovereignty of the British Seas asserted, p. 7. and Edward III. calls himself and his predecessors, "*Domini Maris Anglicani circumquaque et etiam Defensores*," Selden, notes on Fortesc. c. 32. The extent of this dominion was particularly ascertained by a treaty at Westm. Feb. 9, 1673-4, to be from Cape Finisterre, to the middle point of the land Van Staten in Norway.'

The present maritime law of England is an heterogeneous compound of dissimilar materials. It is quite consonant to the principles of equity, but adapted to situations more various and complicated than the ancient world probably ever knew. The laws of Oleron are still its basis; and indeed Richard wants only an able biographer to establish his character as a warrior and a legislator, as an accomplished knight in the tournament, and an elegant poet in the palace. Some additions are made from the Rhodian and the Roman laws; limitations are added from peculiar customs and privileges; modifications and corrections from different situations, or particular emergencies; and the whole code does not disgrace the English system of jurisprudence.

'The first case in our law, extant, relative to marine jurisdiction, occurs in the reign of Edward I. and is preserved in an old record in the Tower, which speaks of the king's sovereignty on the seas, and the jurisdiction of his deputy, the admiral, as being, even then, *du temps dont il ny a de memoire*.'

As in this first instance, the sovereignty is traced to a period beyond the reach of memory, we will hope that the termination, on the other hand, may be beyond the reach of prophecy. It is this attention to our marine that must establish our political consequence; and its prosperity can only be increased by the increase of commerce. The extent it will admit of is indeterminate: reason and imagination are equally unable to ascertain the size to which the bubble may be blown: experience is yet deficient, for it has only informed us, that it adds to the riches as well as power of a state; and that its extension has hitherto been accompanied by the proportional extension of each.

The

The Letters of Charlotte, during her Connexion with Werter.
2 Vols. Small 8vo. 5s. sewed. Cadell.

‘ I Am happy that in presenting the following Letters to the public, I am not exhibiting scenes, or communicating opinions, that can wound delicacy, or pervert sentiment. And though I too well know, that to avoid licentious description, and to reject fashionable ideas, is to wander far from the road that leads to wealth and fame in the literary world, yet I am not willing to acquire either one or the other at the expence of my reader’s happiness. If amusement only is to be found in the Letters of Charlotte, it will at least be innocent amusement. If opinions are advanced which may appear uncommon, they will not be found to militate against the precepts of religion. If the mind of the reader is not expanded by additional knowledge, it will not be contracted by the subtleties of scepticism.’

The editor introduces himself with so much good sense, such grace and decorum, that we were unwilling even to announce him, till he had explained his own pretensions. We shall only add, that he has very faithfully performed his promise. The author, we beg pardon, we mean the editor, for we would not rudely pull aside the mask which he has chosen to wear : the editor, then, enlarges on the pernicious tendency of the ‘ Sorrows of Werter,’ in elegant language, and exposes the injury which the untutored mind may receive from sophistry so guarded, with great force of reason. We think this preface should be re-printed with that dangerous work, which conveys poison under a gilded and seducing outside. The Letters themselves describe the feelings of Charlotte ; the different incidents are frequently those of Werter, with the variations, arising from the mind which perceives, and the pen which describes them. Charlotte appears, in these volumes, to have loved Werter ; and it should be a lesson to both sexes, not to indulge that ardent friendship, which may so soon slide into a more embarrassing, perhaps a guilty passion. The little adventures of Charlotte’s friends are introduced to fill up the landscape.

We have said that the Letters are elegant ; they are also amusing ; and trace, with accuracy, the intricate windings of the human mind, the labyrinth of the heart. As a specimen, we shall select the fourteenth Letter.

‘ It seldom happens that the language of panegyric is just ; yet so excellent is your judgment, that I cannot withhold my assent to the character you have drawn of Werter ; but, give me leave to tell you, the picture is not finished, and that another dash of the pencil—a dark shade—is wanting to perfect the likeness.

‘ You have seen Werter only with others. Notwithstanding his philosophic reasonings, and the apparent complacency of his disposition, he is the very slave of a temper naturally impetuous, and, if I may so express it, rarified by irritability of nerves, and extreme delicacy, or, at least, peculiarity of taste.

‘ You will, perhaps, smile at my idea, that extreme delicacy of taste is injurious to the temper; and you will tell me, that true taste not only refines the understanding, but meliorates the disposition. Much certainly depends on the natural tendency of the temper; and extreme delicacy of taste in one of a cynical turn, will by no means diminish a propensity to querulous fastidiousness: on the contrary, it will add fuel to the flame of intellectual discontent, in proportion as the taste is offended, and the feelings are hurt, by the obtrusions of incongruity, and the absurdities of ignorance.

‘ I cannot call Werter a cynic; but his infirmity of temper is augmented by his delicacy of taste, and the most trifling occurrences make lasting impressions on his mind. He has little command over himself; and whilst his natural temper thus overpowers him, how will he stem the torrent of passion? like the exuberance of his imagination, it will know no bounds: as the one is the source of his most exalted pleasures, so the other, I fear, will prove the cause of his severest afflictions.’

The descriptive powers of the author are considerable: we often admire them; and his pathos melts and amends the heart. In the following Letter they are combined, and this circumstance has induced us to extract it.

‘ The evening was serene: there was that kind of stillness in the air, which inspires melancholy musings, and fills the mind with philosophic tranquillity. The moon was rising, and by her wan lustre, discovered the grey mists slowly ascending from the lakes on my right hand; whilst the woody mountains on my left, were charmingly diversified with innumerable lights and shades.—“ This scene,” I said to myself, “ this scene, dearest of mothers! is sacred to thee: under the shade of these elms, how often have I been blessed with thy blessing!—how often received the instructions of true wisdom!”—The remembrance of those endearing moments filled my eyes with tears: lifting them towards heaven, I could not help uttering aloud one of those spontaneous ejaculations of the heart which draw down blessings, and dissipate distress. My tears relieved me, and the recollection of having obeyed her sacred, her last commands, restored to my mind a melancholy tranquillity.

‘ Turning my eyes towards the mountains, I discovered a man approaching me in great haste. His head was uncovered, and he had the dry stalk of a weed in his hand; the moon shone on his face, and I saw it was the unfortunate Henry, whose passion for me had deprived him of reason. I was extremely terrified; and he came with so much precipitation, that it was im-

impossible for me to escape, for I was at the upper end of the avenue.—I, therefore, stood still.—Poor wretch! I had no occasion to be alarmed; he knew me not; but, looking earnestly in my face, asked me, where his Charlotte was?—"She is not at home," I said.—"I know that," replied he, "I looked all over the hills for her, and she is not there.—She was with me last night, and then I shewed her the moon, and played upon this pipe—her eyes danced—it was on the high hill, and we talked to the moon. When the States pay me, I shall buy the golden stars for my Charlotte."—He smiled as he uttered this. "Go thy ways home, Henry," I said.—He burst into tears, and I was afraid he recollected me.—"No," said he, with a heavy sigh, and a faint voice, "I am no Henry." Folding his hands together, and again looking stedfastly in my face, whilst the tears ran down his own, he said, "There is no Henry—Henry died when the wind whistled in the great tree, and the white clouds took Charlotte to the stars."—He turned his eyes towards the sky, and never saw I so true a picture of settled melancholy: there was a wonderful expression of sadness in his countenance.—"Alas, poor youth!" I said, "go home to thy mother."—He again looked at me with great earnestness, and, in a kind of half whisper, said, "These things must not be known to the princess; she will be angry when she knows Henry is dead, and there are no flowers—hush!—the moon whispers to Charlotte;—I must go"—Then, putting the forefinger of each hand to his lips, he stepped slowly away, as one walks across a room where others are asleep.

'I saw him at a considerable distance, going in the same manner, till he entered the wood. The air grew cold, and the wind began to rise. I returned home with a mind full of melancholy reflections.—Poor youth! may he—who alone is able—restore thee to thyself, and give thee that sweet peace which forms the sovereign balm to all afflicted minds!'

We have enlarged the space we usually allow for extracts, to give a proper specimen of the variety to be found in these Letters, which we think contain the seducing tenderness of Werter, without its danger; which raise the feelings in a whirlwind, without hurrying the judgment along with them, and driving the reader, perhaps smarting from recent, from similar disappointments, into the same destructive abyss.

Essay III. On the Nature and Principles of Public Credit. 8vo. 2s. White.

WE reviewed the First Essay of our able and attentive author, in the Fifty-seventh Volume, page 107; and the Second in the Fifty-ninth, page 268. We did not follow Mr. Gales' Essays very minutely, because the reasoning is so close, and the language so concise, that they would not readily ad-

mit of an abridgement. The third is more of a practical kind, and we shall give a short analysis of it.

The first section is of little consequence to us. It relates to some difference in opinion between our author and the Monthly Reviewers. The second section is on the Nature and State of the Public Debts of this Kingdom, and includes our author's plan for their gradual payment. Mr. Gale mentions the regular effect of a sinking fund, applied at proper intervals, in diminishing the debt: its power would necessarily increase in a geometrical progression, because it must be calculated at compound interest. But, from the effect of payment in raising the value of the stocks, the ratio will be greatly lessened; and to avoid this loss, our author advises that a plan be adopted, which shall, from its nature, fix the price to be paid for redemption, and leave at the same time a free and secure capacity for the stocks, appertaining to the creditors, to rise in value. It seems to be his meaning, to increase the annuity in proportion to the number of years required; and, at the end of that time, that the interest should cease: in short, that a certain proportion of the stocks be converted into annuities for a limited term of years. We think this plan more effectual than that at present adopted, for the reasons stated in our review of the Second Essay, in the Fifty-ninth Volume. The author adds many arguments for his scheme, and varies the view of the subject, so as to render it more easily understood.

The third section is a more particular account of the plan, of which we shall insert the author's own analysis.

' First. To convert the public debts into a 5 per cent. stock, by offering to the creditors, a certain proportion of such five per cent. stock, in exchange for their present stocks and annuities.

' Secondly. To secure the new stock from a reduction of the interest; by making it liable only to a periodical tender for its redemption, equal to the annuity.

' Thirdly. To provide for the conveniencies of those to whom the periodical redemption might be inconvenient; by allowing a suspension of the tender on certain fixed principles.

' Fourthly. To provide for the conveniencies of those whose situations and circumstances might be such as to require temporary annuities, for lives or years; by allowing a transcription of the redeemable stock into such temporary annuities, on certain fixed principles, according to their respective values.

' Fifthly. To give a farther general encouragement for the conversion of the debt; by granting a preference, in all future loans, to the holders or proprietors of the new stock.'

We

We might accuse the author of a want of candour in not explaining the whole of the subject; but as *little* remains, and the subject has been elucidated with great *labour*, he hopes that this little may produce some advantage to the labourer. We do not altogether approve of this conduct, though we confess that Mr. Gale deserves public encouragement. At this moment, however, we see that his expectations are frustrated, and that other methods are preferred, methods probably less advantageous than those before us. But this is not now our object: we leave our author with good wishes; and, though a volunteer in the service, we think rewards have been more undeservedly bestowed than on the present literary financier.

A Poem, on the Happiness of America; addressed to the Citizens of the United States. By David Humphreys, Esq. 4to. 2s. Newbery.

FICTION, by the testimony of Waller, is better adapted and more favourable to the genius of poetic composition than truth. Whether *the felicity*, which is the subject of the present poem, stands in that predicament, the inhabitants on the other side the Atlantic can best determine. Whatever their opinions in general may be, Mr. Humphreys seems thoroughly persuaded of its existence; and strongly impressed with the idea, exhibits his country, as

‘ Spreading her virgin charms abroad,
The last, the fairest offspring of a God!’

and the virtues of his countrymen, in the most favourable point of view, and the most vivid colours. The fervor of his zeal, indeed, sometimes betrays him into a few honest mistakes and exaggerations, that a cooler, and less enthusiastic panegyrist, would certainly have avoided.

‘ Where lives the nation fraught with such resource,
Such vast materials for a naval force?
Where grow so rife the iron, masts, and spars,
The hemp, the timber, and the daring tars?’

From this heterogeneous mixture, one would be tempted to suppose that men, metals, and trees, were the common product of the soil, and grew faster than in other countries, particularly the former.

‘ But men, Columbia, be thy fairer growth!’

This gentleman's conceptions, indeed, of its future grandeur are frequently so brilliant and dazzling, as to render his meaning scarce perceptible.

Anon

' Anon shall new Auroras rise,
And streaming, brighten up th' Atlantic skies,
Back on the solar path with living ray,
Pour heav'n's own splendours in a tide of day.'
' Your tall fleets shall lift their *starry pride* !'

And again,

' Thy rising stars in unknown skies display,
And bound thy labours with the *walks of day*.
' Bid from thy shore a philanthropic band,
The *torch of science* glowing in their hand,
O'er trackless waves extend their daring toils,
To find and bless a thousand peopled isles.'—

A period is suddenly put to this ideal dissemination of literature; and the prospect of bliss somewhat darkened by Mr. Humphreys' reflecting on the captures lately made of American vessels by the pirates of Algiers; whom he execrates with as much spirit as he panegyrises his countrymen. Not even the Digest of Ernulphus affords a more energetic and comprehensive anathema than the following.

' Infernal furies on those monsters haunt !
Pursue the foot-steps of that miscreant crew,
Pursue in flames, with hell-born rage pursue !
Shed such dire curses as all utterance mock,
Whose plagues astonish, and whose horrors shock !
Great maledictions of eternal wrath,
Which, like Heav'n's vial'd vengeance, finge and scathe !
Transfix with scorpion-stings the callous heart,
Make blood-shot eye-balls from their sockets start,
For balm, pour brimstone in their wounded soul,
Then ope perdition and ingulf them whole !'

After an animated apostrophe to the European powers who pay an ignominious tribute to the states of Barbary, the length of which only prevents our inserting it, the author exhorts his countrymen to speedy vengeance, and consoles himself with the idea of its accomplishment.

' Woe to proud Algiers; to your princes woe !
Your pride is falling with your youths laid low—
Woe to ye people, woe, distress, and fears !
Your hour is come to drink the cup of tears :
Pangs of th' undying worm corrode your reins,
Consume your marrow, revel round your veins,
Burst rigid sinews, quiv'ring fibres swell,
And give the torments of the fiends in hell !
A ghastly paleness gathers on your cheeks,
While mem'ry haunts your ears with captive shrieks ;
Then stifled conscience wakening dares to cry,
" Think on your crimson crimes, despair, and die."—
Then ruin comes with fire, and sword, and blood,
And men shall ask where once your cities stood.'

To the Muse's prescient eye things future may be allowed to appear as present, or already accomplished, yet to cool prosaic reflection many difficulties arise, that will probably retard, for a considerable time, the completion of this great event, as well as the appearance of another golden age, or rather the millennium, with which the poem concludes; and, after the destruction of these nations, is to be introduced under the auspices of American prowess and philanthropy.

' Then glorious days, by *hallow'd bards* foretold,
Shall far surpass the fabled age of gold,
The human mind its noblest pow'rs display,
And knowledge rising to meridian day,
Shine like the lib'ral sun—th' illumin'd youths
By fair discussion find immortal truths.
Why turns th' horizon red? the dawn is near—
Infants of light, ye harbingers appear!
With ten-fold brightness gild the happier age,
And light the actor o'er a broader stage!
This drama closing—see! towards its end,
High Heav'n's perennial year to earth descend!
Then wake, Columbians! fav'rites of the skies
Awake to glory, and to rapture rise!
Behold the dawn of your ascending fame,
Illumine the nations with a purer flame,
Progressive splendours spread o'er ev'ry clime!—
Then wrapt in visions of unfolding time,
Pierce midnight clouds that hide his dark abyss,
And see in embryo scenes of future bliss!
See days and months and years there roll in night,
While age succeeding age ascends to light,
'Till your blest offspring, countless as the stars,
In open ocean quench the torch of wars;
With godlike aim, in one firm union bind,
The common good and int'rests of mankind;
Unbar the gates of commerce for their race,
And build the gen'ral peace on freedom's base!

We know not whether these 'hallow'd bards' are merely the offspring of fancy, or whether those *sacri vates*, the Connecticut preachers of old times, who predicted that New England should convert and subject all nations, are meant by that appellation. If its inhabitants still entertain that opinion, they will engage the disciples of Mahomet on a fair footing. However that may be, we concur with Mr. Humphreys in wishing the speedy completion of his prophecy, so far as that all nations may be joined in the bonds of peace and amity: but he must excuse us, if we entertain some doubt of its being effected by the interference of his countrymen—at least till union is more firmly established among themselves.

Natural History general and particular, by the Count de Buffon. Translated into English. Illustrated with about 260 Copper-plates, and occasional Notes and Observations by the Translator. Second Edition. 9 Vols. 8vo. 3l. 3s. Cadell.

IN our Fifty-fourth Volume, p. 371, we reviewed the first edition of this useful translation, and now mention the second edition of it, chiefly to give some account of the supplementary volume. The first supplement of this author was published in 1776, and the second some years after: the former was incorporated with the first edition of the translation, and the latter is now joined to it, and sold also separately to the purchasers of the first edition. The additions and corrections are very miscellaneous: they add greatly to the author's character as a candid and inquisitive philosopher; and have been long collecting, since some of them are of a distant date. The changes in the last supplement chiefly relate to the history and theory of the earth; and these may probably be succeeded by corrections in the other branches of his history: many imperfections have been freely pointed out by later authors.

The count de Buffon may be considered as the ablest naturalist of the old school. Whatever may be his opinion of the first formation of the earth, he has attributed the successive changes in its state chiefly to the agency of water; but he now begins to be more attentive to the effects of fire: indeed it is only by uniting these two almost irresistible powers, that we can explain the great variety of appearances offered continually to the eye of an experienced mineralogist, and an attentive observer. The first additions relate to the article concerning the formation of the planets. It is unnecessary to add that, though the opinion be visionary, or at least uncertain in its foundation, many valuable facts are collected in this part of the work. The next additions are to the article of geography, and the production of strata. In the latter subject, he still adheres to the formation of mountains by the subsiding of the adjoining earth: we shall select the observations on the hills of Peru as curious, and, in a great degree, new.

‘ The banks and beds of the earth in Peru are perfectly horizontal, and correspond sometimes at a great distance in different mountains, most of which are two or three hundred fathoms high. They are in general inaccessible, and often as perpendicular as walls, which gives us an opportunity of perceiving the extremities of their horizontal strata. When any of them happens to be round and detached from others, each bed appears like a very flat cylinder, or as a section of a cone
of

of no great height. These different beds, placed one above another, and distinguished by their colour and various contours, often resemble a regular and artificial structure. In this country, we see the mountains perpetually assuming the appearance of ancient and sumptuous palaces, of chapels, of castles, and of domes. They are sometimes fortifications composed of long curtains, and defended with bulwarks. After examining these objects, and the correspondence of their strata, we can hardly entertain a doubt, that the circumjacent land has not, at some period, been really sunk. It appears, that those mountains, whose bases were most solidly supported, remained as monuments to indicate the height which the soil of these countries anciently possessed.'

The facts next adduced are additions to those observations on the beds of shells found in the highest mountains; and answers to some objections against the opinion, that they are really sea-shells, are subjoined.

The next subject is on Mountains, and their Formation. Our author corrects his former opinion, that *all* calcareous masses are formed by the deposition of water; and thinks that some of them are hardened, perhaps vitrified, by fire; but that these two kinds can be easily distinguished. Ferrugineous matter adds greatly to the hardness: a fact fully evinced by Mr. Wedgwood's compositions.

On the Theory of running Waters our author observes, that, with the same quantity of water, the celerity of a wheel, which is moved by it, is increased in proportion to the height from which the water falls; its influence is said also to be greater in the night than in the day. The reason of the first fact is obvious, and the second is easily explained; for a certain bulk of water can only pass the trough in a given time; so that when the density of the water is increased, its passage will be more easy from the diminution of its bulk; consequently its fall will be more rapid, and the momentum increased: the effects of wheel-work are increased $\frac{1}{2}$ by employing the machine in the night only. A wheel nearer to the canal also turns with greater velocity than one more distant.

In the additions to the article of Seas and Lakes, is a very curious communication from mons. Deslandes, in which he not only ascertains, by a simple and decisive experiment, the existence of double currents in the sea, but endeavours to apply it to the assistance of navigation. He shows too, in the same way, what from different views we have endeavoured to establish, that the momentum of the Atlantic is directed to the north-west. Our readers will recollect, that we chiefly argued from the direction of bays and harbours, evidently

formed by an incroaching sea. Some just remarks follow, on the improbability of a north-west passage.

The article on the Caspian Sea is a very interesting one: mons. de Buffon had said, that it was a lake only, and never had any communication with the ocean. He received the following answers from the Academy of St. Petersburg to some queries which he sent; and these, he thinks, confirm his opinion.

“ Augusto 1748, October 5, &c. Cancellaria Academiæ Scientiarum mandavit, ut Astrachanensis Gubernii Cancellaria responderet ad sequentia. 1. Suntne vortices in mari Caspico necne! 2. Quæ genera piscium illud inhabitant! Quomodo appellantur! Et an marini tantum aut et fluviatiles ibidem reperiantur! 3. Qualia genera concharum! Quæ species ostrearum et cancrorum occurrunt! 4. Quæ genera marinarum avium in ipso mari aut circa illud versantur! ad quæ Astrachenfis Cancellaria d. 13 Mart. 1749, sequentibus respondit.

‘ Ad 1. in mari Caspico vortices occurrunt nusquam; hinc est quod nec in mappis marinis extant, nec ab ullo officialium rei navalis visi esse perhibentur.

‘ Ad 2. pisces Caspium mare inhabitant; acipenser, Sturioli, Gmel, Siruli Cyprini clavati, Bramæ, Percæ, Cyprini ventre acuto, ignoti alibi pisces, tinæ, salmones, qui, ut e mari fluviis intrare, ita et in mare e fluviis remeare solent;

‘ Ad 3. conchæ in littoribus maris obviæ quidem sunt, sed parvæ, candidæ, aut ex una parte rubræ. Cancræ ad littora observantur magnitudine fluviatilibus similes; ostreæ autem et capita Medusæ visa sunt nusquam;

‘ Ad 4. aves marinæ quæ circa mare Caspium versantur sunt anseres vulgares et rubri, pelicani, cygni, anates rubræ et nigricantes, aquilæ, corvi aquatici, grues, plateæ, ardeæ albæ, cineræ, et nigricantes, ciconiæ albæ gruibus similes, Karawaiki (ignotum avis nomen) larorum variæ species, sturni nigri et lateribus albis instar picarum, physiani, anseres parvi nigricantes, Tudaki (ignotum avis nomen) albo colore præditi.’

Though much information may be derived from this account, it is not, we think, quite satisfactory.—Let us transcribe the observations of M. Pallas, quoted in a subsequent part of the volume.

“ In traversing, says M. Pallas, the immense deserts which lie between the Wolga, the Jaïk, the Caspian Sea, and the Don, I observed, that these steppes or sandy deserts, are every way surrounded with an elevated border, which embraces a great part of the beds of the Jaïk, Wolga, and Don; and that these deep rivers, before they penetrated this inclosing belt, were full of islands and shoals, till they began to fall into the deserts where the great river Kuman loses itself in the sands. From these observations I conclude, that the Caspian sea has formerly

formerly covered all these deserts; that it anciently had no other margins than those elevated belts which every where surround the deserts; and that it has communicated, by means of the Don, with the Black Sea, even supposing this sea, as well as that of Azoff, had never made a part of it.'

The next subject is curious, but we cannot enlarge on it, viz. on the inequality in the bottom of the sea, and on currents in the ocean. In the article on Winds and Air, M. de Buffon brings several strong arguments to show that air is not really so much more rare on the top of mountains as we have supposed. The weight which it bears is evidently less, but the rarity, from a diminution of weight, is compensated by an increased density from cold. The following additions are on irregular Winds and Water-spouts.

The additions which relate to Earthquakes and Volcanos, are very necessary ones; but they contain nothing which deserves our more particular attention at present. Then follow some remarks on Caverns, viz. the original ones formed by *primæval fire*, (when the earth, for instance, was struck off from the sun.) The sinking of these caverns forms, in our author's opinion, the basis or reservoir which now holds the sea, and which was, by this means, drained off from the higher lands. From the existence of sea-shells, M. de Buffon thinks, that it once rose two thousand fathoms above its present level, and probably higher, though its heat was then too great to allow of the existence of animated beings, from whose exuviae we are only now able to trace its height. We need not remind our readers, that other philosophers, perhaps with greater reason, suppose these beds of shells to have been raised, instead of the bed of the sea having been sunk.

The new Observations on the Effects of Rain on Marshes, on subterraneous Wood and Water, have a better foundation; but we can mention only the most interesting parts of this very miscellaneous volume, and must therefore omit many of those on the subjects just mentioned. Yet our readers ought to be apprised, since we may have some occasion to allude to it, that the count, from the appearance of fossil bones, endeavours to show, that the earth has gradually cooled; and that the higher latitudes were consequently once the habitation of beasts, which are now confined to the tropics, or of others, to which even the present vertical sun does not afford heat enough for the continuation of the species. Facts more general, and equally powerful, may be adduced, in the opinion of other philosophers, to shew that the zones, now called temperate, were formerly much colder than at present.

The

The Epochs of Nature, a work published by M. de Buffon, is the offspring of a brilliant fancy, supported by extensive researches, and great knowledge. We have already mentioned, in the beginning of this article, that our author's opinion on the formation of the planets, though visionary, was illustrated by facts of real importance. The same may be alledged of the Epochs of Nature; and the following are the facts which the count endeavours, with very unequal success, to illustrate and support: they are preparatory to his other opinions.

' First fact,—The earth is elevated at the equator, and depressed at the poles, in the proportion required by the laws of gravity, and of the centrifugal force.

' Second fact,—The earth possesses an internal heat which is proper to itself, and independent of that communicated to it by the rays of the sun.

' Third fact,—The heat conveyed to the earth by the sun is very small when compared with the heat proper to the globe; and this heat transmitted by the sun would not alone be sufficient to support animated nature.

' Fourth fact,—The materials of which the earth is composed are, in general, of a vitreous nature, and the whole of them may be converted into glass.

' Fifth fact,—We find on the whole surface of the earth, and even on the mountains, to the height of 1500 and 2000 fathoms, an immense quantity of shells and other relicks of marine productions.'

The count then proceeds to enumerate what he calls the Epochs of Nature, or those periods which are distinguished by some remarkable changes in the condition of this planet. These are

' Epoch first,—When the earth and planets first assumed their proper form.

' Epoch second,—When the fluid matter consolidated, and formed the interior rock of the globe, as well as those great vitrifiable masses which appear on its surface.

' Epoch third, When the waters covered all the continents.

' Epoch fourth,—When the waters retired and volcanos began to act.

' Epoch fifth,—When the elephants, and other animals of the south, inhabited the northern regions.

' Epoch sixth,—When the continents were separated from each other.

' Epoch seventh, and last,—When the power of man assisted the operations of nature.'

The translator has abridged the Epochs of Nature, and inserted only the facts in their support. We first suspected that
this

this step would have been injurious to his author, since we well knew that the charms of the count's eloquence had given grace to what was already known, probably to doubtful opinions, and an uncommon brilliancy to truth. We found, however, that, though visionary, many well established facts supported his system; and, though in many respects erroneous, yet, in the examination, much new light was acquired, and the operations of nature were often elucidated. We cannot abridge facts, nor can we select any with advantage; but the vitrifiable mass, which the count mentions in the second epoch, is particularly explained in his beautiful, but doubtful, System of Mineralogy. We hope that our numerous engagements to the public will not prevent us from examining this work at more leisure: we must at present conclude with thanking the translator for this useful addition to the natural history, and for his liberality in the method of publication.

Observations on Mr. Pitt's Plan for the Reduction of the National Debt. By Charles Earl Stanhope, F. R. S. 4to. 2s. Elmsly.

THE means of discharging the public debt is a subject of so great importance to the nation, that every proposal for this purpose ought not only to be written with the most dispassionate temper, but examined with the strictest impartiality. Those who engage in so arduous an enquiry ought likewise to be extremely careful of the principles on which they proceed; lest, with the best intentions of discovering the truth, it should be found that they have been entirely misguided by illusion. With every possible circumspection, the minds of few men are sufficiently capacious for comprehending an object of such magnitude. The task requires a clear conception, an extensive knowledge of finance, and, exclusive of a competent proficiency in arithmetical calculation, an understanding that is strongly guarded against all fallaciousness of induction. Where these requisite endowments are deficient, we may still regard with approbation the industry of the enquirer, should he seem to have been actuated by laudable motives; but at the same time we must regret the temerity that prompted his exertion, especially when it tends to disseminate error, and obstruct such measures as are best calculated for promoting the good of the public.

Impressed with the force of these sentiments, and divested of every prejudice, we shall proceed to examine the Observations of the noble lord which now lye before us, and which, we are sorry to remark, betray an appearance of asperity and want of candour, unsuitable to impartial enquiry concerning

a political question of the utmost moment to the state. That our readers may thoroughly understand the subject of his lordship's Observations, it will be necessary to present them with the account which he has given of Mr. Pitt's plan for the payment of the national debt.

‘ § 2. The plan to which I allude, as it appears by the bill which is now before the house of commons, and which (having already passed the committee) has been printed with the amendments, is simply as follows, viz.

‘ It is proposed by that bill, that, at the end of every quarter of a year, ending the fifth day of January, the fifth day of April, the fifth day of July, and the tenth day of October in every year, there shall be issued or set apart, at his majesty's receipt of Exchequer, out of the surplusses, excesses, and overplus monies composing the sinking fund, a sum of two hundred and fifty thousand pounds; and if there shall not be sufficient money for that purpose in any particular quarter, the bill provides for the making good such deficiency in the following manner; namely, the deficiency of one quarter is to be made good out of the said surplusses, excesses, and overplus monies of the next quarter, and so forth to the end of the year; and, at the end of the year (ending the fifth day of January), the amount of such deficiency or deficiencies is proposed to be made good out of the aids or supplies which shall be, or which shall have been, granted by parliament for the service of the then current year.

‘ § 3. The monies set apart in the manner above mentioned are directed by the bill to be forthwith issued and paid to the governor and company of the bank of England, and to be by them placed in their books to the account of six commissioners appointed by the bill; which commissioners are to be the speaker of the house of commons, the chancellor of his majesty's Exchequer, the master of the rolls, the accomptant-general of the court of chancery, and the governor and deputy-governor of the bank of England for the time being; and these commissioners are directed by the bill to apply the said four sums of two hundred and fifty thousand pounds each (making together the sum of one million) towards the reduction of the national debt, and to no other purpose.

‘ And these commissioners are also directed to apply hereafter to the same purpose all the public annuities for long terms of years, or for lives that may fall in; and likewise all dividends now payable on the principal or capital stock of such public annuities as shall at any time hereafter have been redeemed or paid off by the said commissioners.

‘ § 4. N. B. For the sake of brevity and of perspicuity, I shall hereafter call the said sum of one million annual surplus, together with its increase (by the falling in of the said annuities, and by the saving of interest upon stock redeemed) the free revenue.

‘ § 5. The

' § 5. The said commissioners are directed by the bill to lay out the said free revenue each year, in the purchase of such redeemable public annuities as they shall "deem it expedient" to redeem.

' § 6. If the said commissioners shall "deem it expedient" to purchase redeemable public annuities which shall be at or above par, the sum to be applied to such redemption is to be equally distributed on every hundred pounds of such capital stock; and public notice of the intention of the said commissioners to redeem such stock is to be given in the London Gazette some weeks before.

' § 7. But if the said commissioners shall "deem it expedient", to apply the monies to the purchase of redeemable public annuities which shall be below par, then the free revenue which shall have been placed at the bank to the account of the said commissioners, between certain days mentioned in the bill, the said commissioners are positively enjoined by the bill to apply "to the purchase of such annuities, in equal portions (as nearly as may be) on every day (Saturdays and Mondays excepted) on which the same shall be transferrable between the first day of the calendar month which shall commence next after the end of such quarter, and the first day of the calendar month which shall commence next after the end of the quarter next ensuing."

' § 8. The account of the stock redeemed, &c. is to be laid each year before both houses of parliament.

' § 9. The free revenue is never to be allowed to increase to more than to the sum of four millions in any one year, and all overplus monies (above the said four millions) are to be disposed of as parliament shall direct.

' § 10. The first quarterly sum of two hundred and fifty thousand pounds is to be set apart at the end of the quarter of a year which will end on the 5th day of July, in this present year, 1786.

' The fourth quarterly sum of two hundred and fifty thousand pounds will, therefore, be set apart on the fifth day of April in the year 1787, which said fifth day of April 1787 I shall, consequently, consider as the end of the first year of this plan.'

The first objection which earl Stanhope makes to Mr. Pitt's plan is, that the commissioners may, by means of the powers given them by this bill, make large fortunes by *gambling in the public funds*. In support of this assertion, he observes, that the commissioners will know, in their own minds, in which of the public funds they mean to lay out the free revenue; but the public will not know their intentions in that respect. Consequently the commissioners, or any one of them who is in possession of this important secret, may employ unknown and unsuspected agents to lay out, by degrees, very large sums of

money in that stock which the commissioners mean to redeem with the free revenue. Lord Stanhope disclaims any insinuation that this was the design with which the bill was brought forwards; or that any of the respectable persons who are meant to be appointed commissioners by this bill, would apply to such a purpose the powers with which they are invested; but he contends that the bill, in its present form, is liable to this objection.

It is observable that this objection, so anxiously displayed by earl Stanhope, is actually obviated by the seventh article of Mr. Pitt's bill, as recited in the extract above quoted from his lordship's own Observations. The most favourable supposition we can form from such conduct is, that the noble author has really misunderstood the passage on which he has been commenting. His lordship seems likewise not to have reflected, that when a sum of money is laid out in the purchase of a particular stock, at the market-price, if productive of any effect, it not only raises the price of that individual stock, but occasions, in some degree, a corresponding rise in all the stocks.

If we admit as a fact, what is generally acknowledged, that the method of redeeming the public debt by buying up of stock is the most eligible expedient, certainly the faithful and judicious application of the sinking fund could not be more effectually secured than in the hands of such commissioners as are appointed by this bill; persons not only perfectly acquainted with transactions of this kind, but of the most respectable situations in life. So far, therefore, as political wisdom can impose a check on the exertion of avarice, the end, we must candidly acknowledge, appears to be answered by this bill.

We now proceed to the second objection contained in the Observations.

‘ § 16. This plan, says our author, does not propose any conversion of stock or any free subscriptions by individuals: therefore, it becomes necessary to consider how the free revenue can be applied in a proper way under the powers given to the commissioners by this bill.

‘ I will grant that they will buy up stock judiciously.

‘ I will suppose that the plan of the minister is, first to redeem 25 millions of the present 4 per cents, then to redeem the 17 or 18 millions of the present 5 per cents, (which cannot, by act of parliament, be redeemed, until 25 millions either of the 4 per cents, or of the 3 per cents, or of both, shall have been redeemed)—Then, I will suppose that the remaining 7 or 8 millions of present 4 per cents be redeemed next; and then, that

that the free revenue be applied to redeem the present 3 per cents.

‘ § 17. As soon as a few millions of the present 3 per cents shall have been paid off, the free revenue will have increased to four millions per annum by the falling in of annuities, and by the saving of interest upon the 50 millions of the present 4 and 5 per cents, added to the original million annual surplus. The 3 per cents will then rise considerably; so large a sum as 4 millions per annum being applied solely to the redemption of the 3 per cents. The last 3 per cents to be paid off would be redeemed at par. And I make a supposition very favourable indeed to Mr. Pitt's plan, if I suppose that the 3 per cents, under the circumstances above stated, would be redeemed, on an average, so low as 90.

‘ If the said four millions, free revenue, instead of being applied as proposed by Mr. Pitt (see § 9) were to be allowed to accumulate at compound interest; it is easy to be proved, that the 3 per cents would not be redeemed so low as 90, upon an average, or any thing like it. This I shall demonstrate hereafter. But, I am willing to give every advantage possible to Mr. Pitt's plan. Therefore in the calculations which I shall make hereafter, I shall suppose that he does redeem the 3 per cents at 90 upon an average.

‘ § 18. Now, I object to Mr. Pitt's plan upon this very ground, viz. that his plan is so contrived, that he will put the nation to a most enormous expence, in redeeming the capital of the present 3 per cents. That capital is no less a sum than one hundred and eighty-six millions. He contrives to redeem it at 90 on an average; although the market-price of the said 3 per cents is actually below 70.’

So far as we have occasion to know the proceedings in the house of commons, we have never heard that Mr. Pitt has made any public declaration relative to the order in which he means the redemption to be conducted; and we should be of opinion, that to leave this order undetermined, is the principal object of the plan now under the consideration of parliament. As it is impossible to ascertain at a distant period which stock might be purchased with the greatest advantage to the public, a discretionary power for carrying this purpose into effect, must necessarily be vested in the commissioners; for, should they be positively directed to purchase any particular stock, the consequence is obvious, that the price of that stock would thence be liable to be affected. But this disadvantage is precluded, by empowering the commissioners to apply the free revenue to the purchase of what stock they judge most expedient. Before earl Stanhope had affirmed, that the plan now under the consideration of parliament will put the nation to an enormous expence, by redeeming the capital of the pre-

sent 3 per cents. at so high an average as 90, he ought, in our opinion, to have proceeded upon more certain authority than that of suppositions, so arbitrarily assumed as those in the preceding extract.

Lord Stanhope next takes a view of the general principles on which the respective plans of Mr. Pitt, and of Mr. Fox, are founded. He informs us, that the plan of Mr. Fox, so far as he has been able to collect it from the speeches of that gentleman in the house of commons, is to discharge, in time of peace, the debts contracted in time of war; and when a new war arises, to suspend the payment of the debt, that the nation may enjoy the full effect of its pecuniary resources, at a period when it has the greatest occasion for every possible assistance. Mr. Pitt's plan, on the contrary, is to continue to discharge the debt without any interruption in time of war.—First, to apply only one million annual surplus for that purpose; but afterwards to apply the interest of debt which shall have been redeemed, to form a new capital; or, in other words, to pay off the debt by a million constantly applied at compound interest; to which he proposes to add annuities for long terms of years, and for lives, as fast as they shall fall in, in order to quicken the operation of the new sinking fund, which he proposes to establish. His lordship next enumerates the advantages which Mr. Pitt may urge in support of his principle; but concludes, nevertheless, with declaring, that however much he approves of the principle of Mr. Pitt's bill, he disapproves of the bill itself, which he considers as totally inconsistent with the principle on which it is supposed to be founded.

If we rightly understand earl Stanhope in the distinction which he makes between the principle of Mr. Pitt's plan and the plan itself, he means to observe, that according to the principle of Mr. Pitt's plan, the sinking fund should be inalienable in time of war, but that the plan itself affords no security for this object. What greater security can be obtained for this or any other measure of government, than a solemn act of the legislature, we must leave to earl Stanhope to determine; observing only, that in our opinion Mr. Pitt has endeavoured to fortify his bill with every sanction which can contribute to render the free revenue inalienable. If his lordship knows of any other means than the authority of parliament, the public would doubtless be much obliged for so essential a communication. But if he does not, we must acknowledge it seems very uncandid to convert a defect of the constitution, or rather of all human institutions, into an objection against Mr. Pitt's plan.

Earl Stanhope having stated the outlines of his objections to Mr. Pitt's plan, proceeds to develop the principles of a plan formed by himself for the discharge of the national debt. These principles are included in two propositions, which his lordship's parental fondness has dignified with the title of axioms, though nothing can be more remote from that appellation, in point of truth, conciseness, or perspicuity. The perusal of his lordship's plan might afford subject for a variety of remarks; but we shall only mention one inconsistency. He had previously objected to Mr. Pitt's plan, that it would put the nation to an enormous expence, by redeeming the capital of the present 3 per cents. at so high an average as 90. But afterwards, in explaining his own plan, he forms a calculation of the 3 per cents. being at any price under 100. What, therefore, he had imputed to Mr. Pitt's plan as a defect, he is obliged to admit may happen to his own, in a more extraordinary degree; unless by some fortunate means he can keep down the price of stocks, or provide for the additional expence occasioned by their rise.

The scheme which the noble author proposes is, that new books should be opened at the bank, and that all subscribers of 100l. should be entitled to receive 4 per cent. per annum, interest. That those persons only should be permitted to subscribe, who should actually be holders of 3 per cent. stock, and who shall be willing to convert the said stock, which now bears interest at 3 per cent. into those 4 per cents, which he would distinguish by the name of *The New Four per Cents*. And every person who shall thus voluntarily surrender 400l. of the present 3 per cents (the interest of which 400l. at 3l. per annum for each 100l. is 12l. per annum), shall be entitled to receive 300l. of the new 4 per cents, the interest of which would amount to 12l. per annum. We shall lay before our readers an extract from the Observations on this subject.

‘ § 36. The first question that I shall be asked will be, what means I am to use to induce the holders of the present 3 per cents to make this conversion, by which the said holders of the present 3 per cents will be brought voluntarily to surrender, in the manner above mentioned, 400l. capital for 300l. capital; or in other words, voluntarily to surrender 100l. of present 3 per cents for 75l. of the new 4 per cents?

‘ My answer is, I shall make it their interest so to do, as I shall demonstrate by calculations hereafter.

‘ § 37. A person not well versed in calculations of this kind may naturally say, that there must be some fallacy in my calculations; inasmuch, as it cannot be for the interest, both of the stockholder and of the public, that this proposed conversion

sion should take place. That, if it be not for the interest of the public, it should not be done at all. And that if it be not for the interest of the stockholder, he (the stockholder) will not subscribe.

‘ To which I reply, that singular as it may (at first sight) seem to some people, yet, upon a very little consideration, it will appear, that both the public and the stockholder will be gainers by this proposed bargain; and for this reason, namely, because the public has it (most fortunately) in its power to give to the holder of 3 per cent, stock, that which it will not cost the public any thing to give, but which it will be very advantageous to the said stockholder to receive. And this is the hinge upon which the whole of my plan turns. I will now explain this distinctly.

‘ § 38. The nature of the agreement, which now subsists between the stockholder and the public, is this.

‘ The public has promised to pay 3 pounds per annum as interest for every 100l. capital of consolidated 3 per cents (for instance). The public has promised also never to pay off this 100l. capital at less than 100l. unless the holder of that stock, for the time being, shall be willing (at any time) to accept of less than the said 100l. But, the public has not promised to pay off the said capital upon demand. The public has not promised to pay off the said capital either on any fixed day, or within any given time. And the public has not bound itself to pay off the said consolidated 3 per cents in any given order. But, the public are at perfect liberty to give the preference, in that respect, to whichever of the holders of the said 3 per cents the public may deem it expedient to prefer.

‘ Therefore, what the public has to give to the holder of consolidated 3 per cents, and which it will cost nothing to the public so to give, is the right of priority of redemption. But this right of priority of redemption is, however, of great value to the said holder of 3 per cent. stock to receive.’

Earl Stanhope ascribes to this scheme, of priority of redemption, an extraordinary efficacy, of which, if maturely considered, there seems very little reason to expect that it would ever be productive. Instead of the priority of redemption being an attractive object to the stockholders, we may safely affirm that the stockholders in general are far from entertaining any desire that their stock should be redeemed. His lordship, however, flushed with the idea of its powerful operation, censures the conduct of Mr. Pitt, for not proposing to parliament a plan of conversion, before there was any expectation of a sinking fund; because the prospect of redemption raises the funds, and prevents an advantageous bargain with the stockholders. The noble author appears not to be aware of the consequence which would have naturally resulted from such conduct.

conduct. In proposing to parliament such a conversion, preparatory to the institution of a sinking fund, Mr. Pitt must have preposterously published to the world a design, which would have entirely frustrated every beneficial effect of the proposal. His lordship's arguments are not more satisfactory in a number of other particulars, which it would be tedious to enumerate. We have already, we fear, trespassed too much upon the patience of our readers on this subject. Before we conclude, we shall therefore only observe in general, that these Observations are far from evincing such a degree of political sagacity as ought to have accompanied an address to the public on a subject of so great national importance.

A Short Answer to Earl Stanhope's Observations on Mr. Pitt's Plan for the Reduction of the National Debt. 8vo. 1s. 6d. Cadell.

ON examining this pamphlet, we find that several of the remarks which it contains have been anticipated in our review of the preceding article. In giving an account of it, we shall therefore confine ourselves to such parts as do not interfere with the observations already suggested on the subject. We shall first submit to our readers the author's observations on earl Stanhope's first axiom, which are as follow.

“ When a commodity, which is intended to be purchased, is cheap, it ought to be bought before it becomes dear. And if the party intending to purchase has not money sufficient to buy the commodity forthwith, he ought to bargain for it; the price ought to be fixed; and the time in which the money is to be paid ought to be correctly ascertained.”

‘ This, which he calls an axiom, is deficient in that clearness and simplicity which should constitute the very essence of such propositions, and as far as it applies to the present question it rests entirely on a fallacy.

‘ The price of any commodity to be delivered at a given time does not depend on the actual price which it bears when the bargain is made, but on the price which the parties bargaining suppose it will bear at the time when it is to be delivered. This consideration enters into the calculation made by the person contracting to deliver, as well as into that made by the person contracting to purchase. No advantage therefore necessarily arises to the buyer from making a time bargain at the period when the commodity is cheap. If the future value of the commodity can be known with certainty, both parties will avail themselves of that knowledge at the time of making the bargain, and no advantage will arise to either from the present value; if the future value is matter only of conjecture
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and speculation, both parties will speculate upon it, and the speculation of the buyer may be false as well as that of the seller. The axiom is not therefore generally true. It is not true in the particular instance to which lord Stanhope applies it, because the future price of stock is matter entirely of speculation and conjecture. If the price of 3 per cents. should in the course of a few years rise considerably above its present value, the stockholder who had accepted lord Stanhope's offer, and sold at 75, would lose, and the public would make a proportionable profit. If on the other hand the price of 3 per cents. should in the same period fall considerably below its present value, the stockholder selling now at 75 would gain, and the public would lose exactly in the same proportion.

' Lord Stanhope's axiom is not therefore true in this case, unless the public had any means of speculating on the future price of stock with greater certainty than the stockholder: but the public has no such means. If therefore, on just grounds of calculation, lord Stanhope's offer to the 3 per cent. stockholders of 75 per cent. is only equal to the probable average value of that stock during the period of redemption, the public gain nothing by making the bargain now; but if it is less than such probable value, that is, if his scheme is more profitable to the public than purchasing the stock gradually at prices which it shall bear at the several times of purchase, the stockholders must necessarily lose; there is therefore no ground to suppose that the stockholder will accept it. And this last seems in fact to be the case.'

The remarks which occur in the answer, immediately after this extract, are likewise worthy of notice.

' In sect. 34, lord Stanhope accuses Mr. Pitt of having suffered the time to pass when the 3 per cents. were at 60, without ever attempting to fix their price; that is, without taking any measure which should have prevented their rising higher: his lordship complains that Mr. Pitt has raised the 3 per cents. from 60, he might have said from 55, to 70. I believe that this is the first time any minister was ever blamed for having raised the public credit of the country: Mr. Pitt, by proposing efficient taxes; by checking the practices of illicit trade, and by a general and uniform attention to the collection of our revenue; by the encouragement of our commerce, and by the establishment of strict œconomy in all the various departments of the state, has added 15 per cent. to the value of the 3 per cent. stocks; he has consequently increased all the other property in the kingdom, if not precisely in the same proportion, certainly to a considerable amount: he has not only made the income of the country equal to its expenditure, but has also procured a surplus of a million per annum, to be employed in the reduction of the national debt. Such conduct earl Stanhope considers as a fit subject of serious accusation: he gravely com-

complains, that Mr. Pitt, by raising the stocks, has wasted 18,600,000*l.* of the public money. I rejoice that his lordship feels himself compelled to acknowledge, that the present price of the stocks is owing to those wise and vigorous measures which Mr. Pitt has adopted. I believe that the people of England will readily forgive Mr. Pitt for having brought public credit into its present situation: they will not be disposed to attend to lord Stanhope's attacks, when they know that the principal ground of his accusation is, that Mr. Pitt has raised the 3 per cents. from 60 to 70; nor will they be more disposed to listen to lord Stanhope's own plan of redemption, when they understand that his professed object is to depress the value of the public funds, or, in other words, to make in this commercial country the interest of money as high as possible.

'Let us however suppose that Mr. Pitt had last year attempted to convert the 3 per cents. into some higher stock, and that the inducement proposed had been that which is recommended by lord Stanhope—priority of redemption. We must recollect that last year our income was by no means equal to our expenditure, and that the idea of a sinking fund of a million per annum, was treated by many as chimerical: under these circumstances, is it probable that priority of redemption would have operated as an inducement to convert? Such a preference would, I believe, at any time have very little effect; but at a moment when there was no sinking fund, nor much hope of one in the minds of most men, an offer of converting, upon the condition of being first paid, would have been received with ridicule and contempt.'

The author places in a very clear and strong light the fallacy of earl Stanhope's principle, respecting the priority of redemption; and we have the pleasure to find that he coincides in opinion with the sentiments which we have expressed.

'It is asserted by his lordship, says he, that the right of priority of redemption is of great value to the stockholders. This is by no means true in general: that there are certain stockholders who may wish to be paid off, either from a want of their money, or a readiness to alienate if they can derive any present advantage, I do not deny; but I contend that the stockholders in general are not desirous of their stock being redeemed. A moment's reflection will convince us that this must necessarily be the case. The interest arising from the public stocks in most cases constitutes a considerable part of their annual income, and supplies them with the means of subsistence. The nature of the security, the ease with which the principal is invested, and the punctuality with which the interest is paid, are circumstances which render the public stocks more convenient and desirable to many persons than any other mode of lending their money.

money. Priority of redemption would by no means operate as an inducement to convert with persons of this description; nor would the threat of postponing the payment of their principal to a very distant day, if they refuse to convert, in any degree induce them to accept the proposed terms of conversion: nay, I am convinced, that even that eloquent speech, delivered in earl Stanhope's best manner, which his lordship represents himself as making to an obstinate stockholder, would not prevail upon him to change his determination. Priority of redemption, abstractedly considered, is certainly nothing for the public to give; and as far as the generality of stockholders are concerned, it is worse than nothing to receive. It appears, therefore, that this priority of redemption, which lord Stanhope is so anxious to bring into the market, does not promise to be a commodity of a very valuable nature: its noble inventor seems, indeed, deeply impressed with the idea of its merit; he regards it with a parental fondness, and attributes to it qualities which exist not but in his own imagination.

‘ Since, however, priority of redemption is the characteristic and leading principle of his plan, let us consider it in another point of view. If early redemption be really an object to the stockholders, they will only be disposed to convert, whilst they know, by the quantity of stock already converted, that their own stock, if converted, will soon come in course of payment: when therefore there is a considerable quantity of stock already converted, a person who knows that he shall soon want his money, will in that case look only to the selling of his stock, and will therefore have no inducement to convert. Thus this boasted inducement of priority of redemption cannot, from its nature, prevail to any great extent; it is weakened by every operation, and very soon becomes too languid to have any effect.

‘ I admit, that whilst the stocks are at 75, if lord Stanhope's terms of conversion were proposed, a certain quantity of stock would be subscribed: the amount of that quantity would depend upon this circumstance; whilst any stockholder thinks that his stock, if converted, will come in course of payment before the market price of the 3 per cents. rises to 75, so long the subscription will continue; not because the stockholder wants his money, or cares about the priority of redemption, on any other account, except that by converting on these conditions, he is certain of selling out at 75, and hopes to buy again into another stock under that price; but the moment a stockholder thinks that by the time the present converted stock is paid off, the 3 per cents. will be at 75, from that moment he will refuse to subscribe; or, in other words, whilst the terms of conversion are disadvantageous to the public, so long the subscriptions will continue; but the moment the terms would cease to be disadvantageous to the public, from that moment the subscription would also cease. The fact is, that the stockholders will not convert under an engagement

ment to receive their capital at a distant time, except upon terms of a most extravagant nature.

‘ To put the absurdity of this plan in a still more striking point of view, let us suppose that this mode of conversion is adopted; let us also suppose that some years hence, when the sinking fund has considerably increased, a war should break out, and continue eight years; that the stocks are 15 per cent. under the price of conversion, and that 20 millions are discharged during these eight years of war; under these circumstances, none of which are of an improbable nature, there will in that short period be a loss of three millions to the public. This may serve as a specimen of lord Stanhope's æconomical plan of redemption.’

In treating of the comparison between Mr. Pitt's plan and earl Stanhope's, the author likewise makes some just and forcible remarks. He observes, that his lordship's first calculation is made upon the hypothesis of converting the three per cents at 75, without any bonus; and by supposing that his own plan pays off at 75, and that Mr. Pitt's pays off at 90, he shews that the clear gain by his plan is 36,768,046l. His lordship's moderation, says the author, has been very great in making this hypothesis; for he might as well have supposed a case, by which he would have gained 100 millions. He observes, that earl Stanhope's plan does not in any degree tend to keep down the market-price of the three per cents.: that the circumstance of their not being in course of redemption will not have this effect; for if a holder of the three per cents. happens to want his money, he may sell his stock in the market: that the fair comparison of the two plans would be, to suppose the same price of stocks in the operation of both; and that on this hypothesis, the advantage must be in favour of Mr. Pitt's plan, as there must always be some loss attending the conversion. Earl Stanhope, he observes, seems to acknowledge, that this loss would be about two per cent. which upon 186 millions, the quantity of the present three per cents. would amount to 3,720,000l.

The author next enquires how far lord Stanhope's proposal will render the sinking fund inalienable.

‘ The principles of this plan being, says he, admitted, its effect will be liable to cease at any time when the stock which has been actually subscribed shall have been redeemed; for the legislature may at any time enact, that no more stock shall be converted. I have before proved, that it could never happen that stock would be subscribed to a large amount, except when such a subscription would be exceedingly injurious to the public. It follows, therefore, that the free revenue is, by the principles of this plan, rendered inalienable to a very small degree; or if it were to be rendered inalienable to a considerable extent, it would

would cause an enormous waste of public money. It will be shewn hereafter, that if the new stock should be above par, which is probable in time of peace, this plan does not give the slightest security against the alienation of the sinking fund. The chief danger, however, of alienation is in time of war. Whenever a war should break out, the stocks would naturally fall to a very considerable degree; and supposing lord Stanhope's plan to have been previously established, the conversion would then be made at a very great loss to the public. The minister would have this substantial reason, in addition to those mentioned by his lordship, for interrupting the progress of the sinking fund, and applying the free revenue to the expences of the war. The mischiefs, therefore, which might befall this country by the alienation of the free revenue, are much more to be apprehended from the adoption of lord Stanhope's plan than of Mr. Pitt's; more especially as lord Stanhope directs that the free revenue should accumulate without limit, whereas Mr. Pitt's plan confines it to four millions per annum.

' This argument, however, proceeds on the supposition, grounded on the arguments above stated, that the whole of the 3 per cent. stock would not be immediately subscribed, nor indeed any considerable part of it, except so much as might insure the being paid on higher terms than the rate of stock at the time of subscribing.

' I will, however, for the sake of argument, suppose that the whole is immediately subscribed. There will be no difficulty in proving that in this case the sinking fund is so far from being made inalienable, that lord Stanhope has left it open, and that too immediately to the operation of the very same causes which produced the alienation of the sinking fund under the administration of sir Robert Walpole.'

The limits of a Review will not permit us to give a minute detail of all the remarks which we think worthy of attention. On this account, we shall only subjoin, for the satisfaction of our readers, those made by the author on lord Stanhope's assertion, that his plan is advantageous to the stockholder.

' With a view to establish the proposition, "that his plan is advantageous to the stockholders," he seems very anxious to refer his readers to the two tables contained in Appendix No. 21, and explained in Appendix No. 20. As those two tables are formed upon the supposition that all the 3 per cents. will be converted at 75, and as it has been proved that stock to a considerable amount will certainly not be subscribed upon those terms, all conclusions derived from such an hypothesis deserve no attention. If lord Stanhope had employed a very small part of that time, which he has wasted in these chimerical calculations, in asking persons conversant in business of this sort, whether it was probable that the proprietors of 3 per cent. stock would now enter into an agreement to have their stock redeemed at the

rate of 75 for every 100l. twenty or thirty years hence, he might have spared himself the trouble of reasoning upon such groundless assumptions. Having however made this improbable hypothesis, he still feels himself under the necessity of practising a very curious manœuvre. Whilst he is discharging the converted four per cents, he suffers his free revenue to accumulate without limit: but this mode of proceeding will not answer the purpose of the comparison which he now wants to make; nor indeed will Mr. Pitt's limit of 4 millions per annum suit his present design. In short, any free revenue above two millions per annum will overturn his whole system; therefore, says he, I will limit the free revenue to the sum of two millions per annum, when there are no converted four per cents. By this limitation in the case mentioned in Appendix No. 20, the national debt will not be discharged in less than one hundred and seventeen years. In that case, by comparing the value of 75l. added to its accumulated interest to be received at the end of twenty years, with 90l. added to its accumulated interest to be received at the end of ninety-one years, he hopes to prevail upon the stockholders to accept his terms of conversion. The rest of his comparisons are formed upon hypotheses equally unfair and improbable.

From the parts we have exhibited of this answer, our readers will perceive, that the author has closely examined earl Stanhope's Observations, and has refuted, with much force of argument, the several propositions of the noble author. We are totally unconcerned with the interests and views of contending parties in the state; but cannot be indifferent to the fate of public measures of the greatest consequence to the nation; and when there come before us such productions as are calculated to mislead the judgment, it is our duty to bring forward those observations which tend to remove the deception.

Memoirs of the Life and Writings of Arthur Ashley Sykes, D. D.
By John Disney, D. D. F. S. A. 8vo. 5s. in Boards. Johnson.

THIS writer informs us that he 'did not undertake to pay this tribute to the memory of Dr. Sykes, from that partiality to his character, which is sometimes the result of personal knowledge, or a perfect similarity of sentiment; but from an high and general regard for the great learning and zeal which appear in his defences of the religion of Christ, the rights of Protestantism, and the civil liberties of his country. Nor does he, by any means, make himself responsible for any particular opinions maintained by Dr. Sykes, either of a civil or religious nature; but, on the contrary, will be found to differ from him upon many very important subjects, both in religion and politics.'

' And

‘ And I scruple not, says Dr. Disney, with a manly liberality, to declare myself to be above the little limitations of an exact agreement in opinion as the test of my esteem and regard for any worthy character. I believe all the works of Dr. Sykes to have been designed by him to advance scriptural knowledge and the full liberty of professing our religious faith; or to serve the cause of our civil liberties.’

If, by ‘ the full liberty of professing our religious faith,’ Dr. Disney means the most perfect toleration consistent with an enlarged national establishment, he has probably not exceeded the liberality of Dr. Sykes’s sentiments. It is not easy to imagine, when we consider the integrity of his character, that he could have reconciled notions less restrained with his repeated subscription to the thirty-nine articles under any construction he himself can have allowed to this act.

Mr. Sykes is supposed to have been born in London, about the year 1684. He was instituted at St. Paul’s School in grammatical and classical learning, and finished his education at Corpus Christi, or Benet college in Cambridge. He was for some time engaged as one of the assistants at St. Paul’s school, but finding the confinement of this charge inconsistent with the prosecution of his private studies, he gave it up. He received his first ecclesiastical preferment, the vicarage of Godmersham in Kent, from Dr. Tennison, archbishop of Canterbury. After these circumstances, Dr. Disney proceeds, in his first chapter, to take notice of Mr. Sykes’s earliest publications, theological and political; the distinguished part he took in the Bangorian controversy; his next promotions in the church; his tracts in the case of Dr. Bentley, his *Modest Plea for the Baptismal and Scripture Notion of the Trinity*, and *Vindication of Scripture Doxologies*.—The second chapter gives an account of his controversy with Mr. Rogers, on Church-power; of his Letter to the Earl of Nottingham, occasioned by a motion made by the Archdeacon of London, at his Visitation for the City-clergy, to return their thanks to his lordship for his answer to Mr. Whiston, concerning the Eternity of the Son and of the Holy Ghost. Mr. Sykes’s appointment to the morning preachings at King’s-street chapel; his controversy with Dr. Waterland on Subscription; Letter on the Quaker’s Bill; his preferments in the church of Salisbury, and notice of two Occasional Sermons, are the remaining subjects treated in this chapter. In the next we are made acquainted with his appointment to the assistant preachings at St. James’s church; the publication of his *Essay on the Truth of the Christian Religion*; his taking the degree of doctor in divinity at Cambridge; his performance on the *True Grounds of*
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the Expectation of the Messiah; two Assize Sermons, and his Eulogium of Dr. Clarke.—The contents of the fourth chapter are, Dr. Sykes's Controversy with Dr. Waterland, in Consequence of Dr. Clarke's Exposition of the Church Catechism; his Controversy with Mr. Whiston, Mr. Chapman, and others, concerning the Eclipse mentioned by Phlegon; two Tracts relating to Dr. Rundle's being refused the Bishoprick of Gloucester; and two others, on the Reasonableness of Repealing the Corporation and Test Acts, and their Non-importance to the Church of England, and his Enquiry into the Meaning of the Demoniacs in the New Testament, and Controversy with Mr. Whiston, Mr. Twells, and others, in Consequence of it.

‘ Dr. Sykes, following the opinion of the eminently learned Mr. Joseph Mede, shews, that “demons,” signified simply the souls of departed men, who were no more mortal, being translated out of this life; and were names given, (from supposed invisible causes,) to visible effects, which appeared in various shapes, as epilepsy, madness, melancholy, and other disorders of the mind and body; and that this was equally the meaning of the Greeks and Romans. He then enquires into the meaning affixed to the word by the Jews, as found in the Old Testament, as also in Josephus, which corresponds with those of both the Greeks and Romans. He afterwards proceeds to examine the several passages in the Gospels and the Acts, where demons or demoniacs are spoken of, all of which he understands as meaning the souls (spirits) of dead men, which were considered as the cause, the imaginary cause; and epilepsy or madness the effect proceeding from that cause. The general objections and difficulties in the way of this interpretation are very candidly produced, and arranged in five separate arguments, with their respective answers annexed.’

In the fifth chapter is mentioned Dr. Sykes's promotion to the rural deanery of St. Buriem, in Cornwall, and to a prebend of Winchester. This is followed by some account of his publication of the Principles and Connexion of Natural and Revealed Religion. His “Brief Discourses on Miracles.” “Rational Communicant.” Controversy with Mr. Warburton on his Account of the Conduct of the Ancient Legislators; of the double Doctrine of the Old Philosophers; of the Theocracy of the Jews; and of Sir Isaac Newton's Chronology. These, with two Tracts on the Toleration of the Papists, and Thanksgiving Sermon at Winchester, on the Suppression of Rebellion, form the contents of the sixth chapter. The seventh, eighth, ninth, and tenth, give the History of his Essay on Sacrifices, and of the share he took in the controversy which followed Dr. Middleton's Free Enquiry in-

to the Miraculous Powers.—Of his Paraphrase and Notes upon the Epistle to the Hebrews.—Of his Scripture Doctrine of the Redemption of Man, by Jesus Christ.—Of his Tract on Confirmation, and a posthumous work entitled, *An Inquiry when the Resurrection of the Body, or Flesh, was first inserted into the Public Creeds.* This last piece was published from the author's manuscript by his brother, G. Sykes, A. M.—In the next and last chapter are related some circumstances of Dr. Sykes's death, followed by a summary review of his moral and literary character.

Our readers will observe, from the epitome above, chiefly collected from the contents of the several chapters, that there are no incidents in Dr. Sykes's life calculated to surprise or amuse the imagination. His whole history is comprised, like that of most churchmen distinguished by literary attainments, in their successive ecclesiastical promotions, and the publication of their works. From the author's account of Dr. Sykes's numerous performances, the world will conceive a very advantageous opinion of his learning and abilities, and every good man will hear with pleasure, that, 'in all his various political debates and literary controversies he always conducted himself with temper and good manners towards his adversaries, insomuch that it will be difficult to find one single instance, wherein he exceeded the bounds of decorum and civility.'

Dr. Disney, and those respectable persons who, from motives of conscience, have cheerfully resigned the emoluments of a church-establishment, many of the doctrines of which they dissent from, may be allowed to avail themselves with no ill grace of any recommendation which the name of so able a controversialist as Dr. Sykes can lend to their opinions; but we cannot help thinking, that the controversialist himself would have given the most unquestionable proof of his own perfect conviction of their truth, had they moved him to place himself in the same conscientious predicament.

These Memoirs are written in an agreeable and unaffected style, and in such a manner as shews the author to want neither discernment nor moderation. His reviews of Dr. Sykes's numerous performances are frequently entertaining, and furnish much information relative to the literary history of the time in which he wrote, on political as well as theological subjects.

MONTHLY

MONTHLY CATALOGUE.

P O L I T I C A L.

Observations on the Commutation Project. By Thomas Bates Rous, Esq. With a Supplement. 8vo. 1s. Debrett.

WE think that, in the title, Mr. Rous treats a political plan of great magnitude with disrespect—which is the more unjustifiable, as his observations by no means prove that it deserves the degrading term of a *project*.

That the tax on windows, called the commutation tax, is partial and oppressive, may be allowed; we are not, however, to examine the impost, but only the necessity of a change. The two great objections of Mr. Rous are, that we introduce a luxury injurious to health; and that, in pursuit of it, we squander away a great revenue. We have had occasion to examine both positions, with some care, from actual experience, and shall shortly state the result of our enquiries. In general, it may be alledged, that tea does little harm. The strong infusions of the finer sorts are, we believe, injurious; and a very great excess of any sort, like any other excess, may weaken the constitution. The complaints, which follow tea-drinking, are more often owing to the smuggler's mixtures than to tea itself, and still more frequently to its substitution for animal food. Where tea is commonly smuggled, and the smuggled sort is drank, we find more complaints arise from it than in other parts: the complaints too are not those which may be supposed to follow tea, but which arise from substances not alimentary. Mr. Rous is right, when he observes that, in the inland counties, tea is now more generally drank; but he is wrong in supposing the revenue will suffer. A labouring man wants something more substantial; and, if any part of the revenue really suffers, it will be that arising from spirits, probably a luxury more pernicious than even tea. We know that, in the smuggling counties, it has not superseded the use of beer; and that, in these places, other cordials are uncommon. The changes, however, introduced in the inland counties, will lead us to suspect the accuracy of that calculation, which deduces the quantity of tea formerly drank, from the proportional quantities lately sold.

The second objection is, we believe, equally erroneous. He supposes the smuggler carries bills out of the kingdom. Generally, perhaps universally, he does not; so that, however great the revenue may appear which is now sent to China, that formerly sent from the kingdom probably exceeded it, because the foreign merchant received a profit. The smuggler's profit also, in part only centres in this kingdom. There is one means by which we already perceive the drain of specie from the kingdom will increase. People now use finer teas than formerly, because they are bought at nearly the same price.

Mr. Rous thinks that the revenue might have been increased by lowering the duties in part only, and following that measure with other salutary regulations. We think that the proposed plan would not have succeeded for this reason, that tea is still smuggled in small quantities. The smuggler, while the market is open for brandies, would have poured in his teas by the same conveyance, which he would have sold low, by having previously adulterated them. At the former rate it is observed, that the smuggler, considering his risks, had little profit; but Mr. Rous seems not to have examined the system attentively.

We have thus given a summary view, with remarks, on the Observations before us. We have not entered into the arguments for the change. In a national view, they are strong and weighty: it is not one of the least, that the informations, during the last war, given to the enemy, were chiefly by means of smugglers.

We shall not enlarge on the new tax on windows; it is neither a prudent nor a political one; but our arguments are not likely to convince those whose duty it is to decide on the methods of improving the revenue.

The Commutation-Act candidly considered, in its Principles and Operations: being an Answer to, and Confutation of, a Pamphlet, entitled, The Principles of the Commutation-Act established by Facts. By Francis Baring, Esq. 8vo. 1s. 6d. Robinsons.

This pamphlet is designed to answer that lately published by Mr. Baring, and is introduced by a dedication to the duke of Northumberland. We must not suppose it to be ironical, because the author has signed, what appears to be, his real name; but must observe, that what so much resembles irony, a plain man may readily mistake for it.

The remarks are more certainly ironical; but they relate chiefly to the tax, which has been imposed instead of the duties on tea. Mr. Thompson examines Mr. Baring's observations on this subject, with great acuteness and severity; but not always correctly, or with good humour and liberality.

As, in the former article, we deducted from the quantity annually consumed, by observing that the consumption is now more general; so our author deducts more from it, by considering the quantity of factitious teas, commonly called Smouch. The manufacture was indeed considerable, though Mr. Thompson has rated it too high. But we consider it as one of the great advantages of the commutation tax, to have crushed so pernicious an evil.

The author is too violent to be always right: he advances no new facts, nor does he state the question in a clear light. We can only hope, that if it be determined to commute the taxes on other articles, that the new impost will be more equally laid, and less oppressive in its effects.

Impress

Impress of Seamen. Considerations on its Legality, Policy, and Operation. Applicable to the Motion intended to be made in the House of Commons, on Friday, 12th May 1786, by William Pulteney, Esq. 8vo. 1s. 6d. Debrett.

The impressing of seamen is so flagrant a violation of personal liberty, that nothing but the most urgent situation of public affairs can justify the recourse to such a practice. Proposals for remedying this evil have been several times submitted to the consideration of the legislature, but without the desired effect. In examining this subject, the author now before us takes a wide view of the privileges to which every member of the British dominions is entitled, not only by the political equality which they enjoy from nature, but by the positive declaration of Magna Charta. Waving, however, the arguments respecting the legality of the impress, which certainly cannot be maintained upon any principle of the British constitution, we shall present our readers with the author's remarks on some particular inconveniencies to which the practice of impressing seamen, in this country, may henceforth be liable.

‘Circumstances, says he, have arisen since the late war, which places the impress in a new point of view, and which require a very mature consideration. These are the alterations in the political situation of this kingdom with respect to Ireland and America; from both of which we derived a very considerable part of our naval strength. With respect to the former, this change of political circumstances must affect the impress, both in its principle and operation. The latter may in some degree, as far as example can induce, make against the principle; for surely in America an impress can never be supposed to take place; but be that as it may, it will certainly prove a material obstacle in its operations. The recognition of America, as a separate state, totally independent of this kingdom, places the natives of that country in the same situation with those of any other foreign state; and thousands of seamen may, by intercourse between America and Great Britain, be at different times in the latter during a future war. If an impress takes place, how are the Americans to be distinguished by officers upon that service? or rather, how are they to disprove the assertion of any man they are attempting to impress, who declares himself to be an American; the similarity being so great in their figure, complexion, language, manners, and habits, as to render it impossible to distinguish the one from the other?—Is it because he cannot produce a register of his baptism, that you can pronounce him an Englishman? or can you for want of that, or other sufficient evidence, compel him to serve; or pass any law, which shall place him under the necessity of producing it, any more than you would a native of France, Spain, or Holland?—Does not this circumstance present the certainty of a constant scene of confusion, an opening left for every British seaman, who is not absolutely known, or by some peculiarity

liarity evidently distinguished, to take advantage of, and thereby avoid the service?"

It is sufficient to observe with regard to this pamphlet, that the author contends, with a liberal spirit of freedom, for the abolition of a practice, not more despotic in its principle than replete with such oppression as is a disgrace to humanity. He describes, in a strong and affecting manner, the extreme hardships of which it is well known to be productive; and he likewise evinces, that the great expence attending it, bught, upon a just estimation, to diminish the opinion of its supposed utility, when compared with other methods which have been suggested of procuring seamen in time of war.

Inferior Politics. With an Appendix, containing a Plan for the Reduction of the National Debt. By Hewling Luson, of the Navy-Office. 8vo. 2s. 6d. Bladon.

Under the veil of an unassuming title, this tract contains some disquisitions of essential concern to the public. The author exposes, very clearly, the sources of that wretchedness and profligacy which so much prevail among the poor in the capital and its environs; and he points out the probable means by which those baneful effects might be obviated. He is of opinion, that if every parish were obliged to maintain the poor residing in it, at the time they become chargeable, such a regulation could not fail of being accompanied with the most salutary consequences. For, every parish being obliged to maintain its own poor, and every inhabitant being a parishioner, the first effort of parochial economy would be, to permit no beggars to inhabit it who were capable of working for their living; and it would make them regard the manners of the common people with the most vigilant attention; well knowing, that if the parents be idle, or spend in drink the produce of their labour, by which their families should be supported, the parish where they live must maintain them.

We submit to our readers the few following observations and fact, as they confirm what has often been asserted with respect to parochial embezzlement.

‘ On a moderate calculation, it may be computed, that at least one eighth part of the immense sum, annually levied on the inhabitants of London and its environs for the maintenance of the poor, is expended in feasting the collectors and their adherents, and other misapplications and impositions to which the public is liable; for heavy and arbitrary fines are levied on those, who, disdaining to abet a species of robbery they are unable to prevent, refuse to serve with such unworthy colleagues. Parish-offices are usually performed by a junto of mercenary tradesmen and mechanics, who, not content with expending the money, with which they are entrusted, in their luxurious and extravagant entertainments, make it the principal business of those meetings to contrive unnecessary plans of

parochial expence, of which themselves are to be the projectors, the comptrollers, the operators, and the paymasters.

‘ To those, who think this estimate of parochial gluttony and imposition too high, the following fact, which can be established by incontestible evidence, is submitted by way of apology. The writer is credibly informed, that, in a parish not many miles from London, the inhabitants paid, in the year 1783, as a composition for repairing the highways, upwards of 120l. of which sum, 75l. were proved to have been spent in different entertainments, at the same time that some of the roads in that parish were not only impassible, but a nuisance to the inhabitants who had houses contiguous to them, and who paid their part of the composition. But then the reader is requested to remember, that these were not highways, but by-ways; and therefore it could not be supposed the surveyors would make a misapplication of the public money, by laying out any part of it in mending them.’

This author’s observations respecting the penal laws are not less judicious than those which relate to the treatment and maintenance of the poor. He describes, in pathetic terms, the great hardships and pernicious effects, of which the present legal system, in criminal cases, is productive; and for this defect, likewise, he proposes such salutary regulations as are highly worthy of attention. Mr. Luson’s plan for the reduction of the national debt, is not, in our opinion, equally eligible with his other proposals.

An Account of the gallant Defence made at Mangalore in the East Indies; against the united Efforts of the French and the Nabob Tippu Sultan, by a Detachment of his Majesty’s and the Honourable the East India Company’s Troops, under the Command of the late Colonel John Campbell. By a British Officer. 8vo. 4s. sewed. Bathurst.

The defence related by this British officer was made against the united efforts of the French, and the nabob Tippu Sultan, by a detachment of his majesty’s and the East India company’s troops under the command of the late colonel John Campbell, major of the 42d (or Royal Highland) regiment of foot, in May, 1783. In this narrative the good conduct of colonel Campbell, with the bravery, as well as passive fortitude, of himself, the officers, and the troops, are placed by the author in such a light as does the highest honour to their zealous and noble exertions in the service of their country. The 42d regiment has long been distinguished for valour in the field; and has now, likewise, evinced its heroism in sustaining, with unremitting ardor, the distresses of a tedious defence.

The History of a Revolution at Naples. Small 8vo. 1s. 6d. Ridgeway.

‘The worst motives could only have induced the compilers to collect the facts here detailed, and of which the tendency is

too pointedly clear to be mistaken. But it fortunately happens, that malignity, in its eagerness to destroy, overshoots its mark; for few would even purchase success at so great an expence. The force of political engines are, however, much weakened; for the world now sees that the difference between parties consists entirely in the one being in place, and the other out. If the heads of the different leaders were sawed asunder, and the separated parts applied to the antagonist, it would be of little consequence; for, as Swift observes when he mentions the scheme, that as for the integrity or information, contained in these heads of opposite parties, to his knowledge there was little difference.

Letters on Excessive Taxation. 8vo. 2s. 6d. Fryer.

This writer, who assumes the name of Philanthropist, is, it seems, or imagines himself to be, in the possession of a secret, which, according to his sanguine expectations, would relieve the nation from all its political distresses. After many fruitless applications on this subject to persons of high rank, he now exhorts the people to appoint one gentleman out of every county to receive his proposal, and determine concerning its efficacy. We much fear that Philanthropist will long find occasion to reiterate his appeal to the public, before he can procure such a congress.

Tax on retail Shops; or, the Plunderers of India erecting the Standard of Peculation in Great Britain. 8vo. 1s. Ridgway.

Old Square Toes, as this author calls himself, affects to be a shrewd politician; but he discovers much stronger symptoms of prejudice and ill-founded conceptions, than of political knowledge or sagacity.

An Authentic Account of the Debates in the House of Commons, February 27, &c. on the proposed Plan of Fortifications. 8vo. 2s. 6d. Ridgway.

This Account has the appearance of being faithful, and may, therefore, afford satisfaction to those who are particularly interested in the debate relative to the plan of fortifications by the duke of Richmond.

The Law's Disposal of a Person's Estate who dies without Will or Testament. The Second Edition. To which is added, the Disposal of a Person's Estate who dies without Will and Testament. By Peter Lovelass. 8vo. 3s. 6d. Buckland.

This is another edition of a work, reviewed in our Number for March last, entitled, 'The Will which the Law makes.' To which is now added, Instructions relating to the disposal of an estate, either real or personal, with forms of wills, codicils, &c. The work is executed with care and accuracy; but we must still alledge, that the best instructions are insufficient, without professional knowledge, and a proper education.

An Enquiry into the Influence which Enclosures have had upon the Population of England. By the Rev. J. Howlett. 8vo. 1s. Richardson.

Mr. Howlett, whose examination of the population of England has so materially elucidated the subject in this little tract, endeavours to obviate the gloomy apprehensions of those who look on enclosures as the bane of increasing numbers; and the provision for raising additional food, as the surest means for lessening the number of mouths which are to consume it. Indeed, if any great error was committed in this way, it would correct itself. Enclosing would not be encouraged if provisions were not at a high price; and the practice must soon cease when it becomes so disadvantageous, as it would be, if it tended to depopulate.

Mr. Howlett has combated Dr. Price, who has continued to reprint his opinions, though their fallacy has been often demonstrated, by actual enquiries, in those parishes where enclosing has been most general. His letters were not confined, but extended to every parish which the Journals of the House of Commons told him had applied for, and obtained bills of enclosure. His enquiries were not, however, generally answered. The answers to about ninety which he received, are thrown into the form of a table, and compared with parishes, in the same county, not recently inclosed. For obvious reasons, he has avoided taking into his calculation the large flourishing towns of Birmingham, Sheffield, Manchester, &c.

‘In this table we see that the recently enclosed parishes have vastly the advantage of those which have not been recently enclosed. The baptisms in the 89 parishes of the former description, during the five years, beginning with the year 1760, to the baptisms during the five years beginning with 1775, or 1776, are nearly as 100 to 121; whereas in the 490 of the latter, for the same periods respectively, the advance is only as 100 to 109; that is, the enclosures are increased more than $\frac{1}{5}$ th, the non-inclosures scarcely $\frac{1}{10}$ th. This is surely little less than absolute demonstration of the point in question, the influence of enclosures upon the population of this kingdom, and that, so far from having diminished, they have much increased it. It is also to be observed, that the increase from hence arising is certainly greater than here appears; because those enclosures which converted arable to pasture, must have lessened the employment of the inhabitants, and of course their number, in the several parishes in which they respectively took place, and proportionably augmented and employed those in parishes where enclosures had not taken place.’

From the militia-returns Mr. Howlett calculates, that the county of Rutland has increased 12 or 1600 in the course of ten years. We are always indebted to this author's attention and industry for valuable information, and are well pleased to think that he has not forgotten his favourite subject: we need
not

not tell him that we should receive, with pleasure, the result of his continued enquiries.

P O E T R Y.

A Supplement to the Pharsalia of Lucan, translated from the Latin of Thomas May. By the Rev. Edmund Poulter, M. A. 4to. 1s. 6d. Cadell.

This performance of May's 'met with the peculiar pre-eminence of being received into, and incorporated with, the most eminent editions of the classics that have been published since its time; and particularly those of Barbou, the Elzevirs, and Oudendorp; an honour perfectly singular, there being, I think, no other instance of a work so modern being admitted to that classical distinction, which it is in full and peaceable possession of, as it seems now by common and uncommon consent.

———— adscribi quietis

Ordinibus————Hor.

'The attestations of contemporary genius have been abundant. It may be sufficient to mention the names of Heinsius and Johnson, and the complimentary address of sir Richard Fanshawe Maio Lucanizanti.'

Notwithstanding this encomium, and the sanction of Germanic booksellers; notwithstanding the praise bestowed by contemporary writers, we cannot but express our disapprobation of this 'common and uncommon consent,' and enter our protest against it. The first book, which is the only one submitted to our consideration, is certainly a very puerile performance; devoid of classical beauty, and sometimes of grammatical precision. The introductory lines will serve as a short specimen, not the most unfavourable that might be selected, both of the original and version; which conveys nearly as just an idea of the spirit of the former, as Rowe's animated translation does of the Pharsalia of Lucan. A comparison in other respects need not be mentioned.

'The sea no longer frown'd, safe from the waves,
Safe from the wiles, the wrath of Egypt's slaves,
Lo! Cæsar on the shore indignant sat,
Breathing revenge, with anger fraught so great,
Not Pharos crush'd his vengeance would assuage;
Nor Egypt's self destroyed appease his rage.
'Twas not the doubt of war unjustly brought,
(Just was his cause of war) that rack'd his thought,
But shame and indignation urged his mind,
To know such cause of war was giv'n; to find
The soft Canopus Cæsar's wrath dar'd try;
Deserve his chastisement, his arms defy,
Whose vengeance Rome herself could ill sustain;
Nor yet opposed, but at the heavy pain
Of freedom hazarded, and Pompey slain.'

}
'Per-

'Perdiderant freta sæva minas, et ab æquore tutus,
 Tutus ab insidiis imbellibus, et sceleratâ
 Egypti rabie confedit littore Cæsar,
 Vindictam spirans, tantâque efferbuit irâ,
 Quantam non Pharii potuit restinguere regni
 Exitium. Justa est belli data causa gerendi:
 Sed pudor, et magnam premit indignatio mentem,
 Bella dari tam iusta, aut mollem audere Canopum
 Cæsareas iras, infestaque tela mereri,
 Quæ vix armipotens est ausa laceffere Roma;
 Nec damno tantas iras levior luisset
 Quam libertatis jacturâ, et funere Magni.'

A Poetical Review of the Literary and Moral Character of the late Samuel Johnson, LL. D. With Notes. By John Courtenay, Esq.
 4to. 2s. Dilly.

Probably we expected too much; but Mr. Courtenay's talents in serious irony and pointed allusion, which have so often 'kept the table,' and the *house* also, 'in a roar,' we supposed might have found ample subject for his pleasantry in the peculiarities of Johnson. At present, this is 'a tedious dull homily, as ever parishioners were wearied withal,' and has never cried 'your patience, good people.'

We need scarcely enlarge on the subject of the poem: the title informs the reader sufficiently in that respect. Some of the best lines are the following.

'Lost is the man, who scarce deigns Gray to praise,
 But from the grave calls Blackmore's sleeping lays;
 A passport grants to Pomfret's dismal chimes,
 To Yalden's hymns, and Watts's holy rhimes;
 By subtle doubts would Swift's fair fame invade,
 And round his brows the ray of glory shade;
 With poignant taunt mild Shenstone's life arraigns,
 His taste contemns, and sweetly-flowing strains;
 At zealous Milton aims his tory dart,
 But in his Savage finds a moral heart;
 At great Nassau despiteful rancour flings,
 But pension'd kneels ev'n to usurping kings:
 Rich, old, and dying, bows his laurel'd head,
 And almost deigns to ask superfluous bread.'

The poetical fire, of which a little gleam enlightens the passage we transcribed, is soon extinguished, and the rest of the review, we will not call it a poem, is almost measured prose. Perhaps the following is a more impartial specimen of the general complexion of the work.

'Thus sings the muse, to Johnson's memory just,
 And scatters praise and censure o'er his dust;
 For through each checker'd scene a contrast ran,
 Too sad a proof how great, how weak is man!
 Though o'er his passions conscience held the rein,
 He shook at dismal phantoms of the brain:

A bound-

A boundless faith that noble mind debas'd,
 By piercing wit, energetic reason grac'd :
 A generous Briton, yet he seem'd to hope
 For James's grandson, and for James's pope :
 Though proudly splenetic, yet idly vain,
 Accepted flattery, and dealt disdain.—
 E'en shades like these, to brilliancy ally'd,
 May comfort fools, and curb the sage's pride.'

Bozzy and Piozzi ; or, the British Biographers. A Town Eclogue.
 By Peter Pindar, Esq. 4to. 2s. 6d. Kearsley.

Nothing ludicrous escapes this son of wit and satire, this Momus of the lower world. The Johnso-mania is a fertile topic for his pleasantry ; and the rival writers of Anecdotes rehearse their several works in humorous rhyme. The importance which the merest trifles seem to derive from their connection with Johnson, is displayed in the alternate speeches of these Arcadians, and consequently the pleasantry will frequently be lost by those unacquainted with the different works of Mr. Boswell and Mrs. Piozzi. At last their dispute runs so high as to require the interposition of the umpire, sir John Hawkins, who shares in the ridicule so plentifully scattered. The speakers quarrel in language not the most delicate ; and when Peter speaks from himself, his words are not always chosen with the nicest decorum. For this fault we have frequently had occasion to reprehend him ; and are sorry that he has profited so little by our advice.

We shall select a passage from the beginning of the second part, after the umpire had rested a little from his fatigue ; his spirits, in the language of Bayes, having been ' so much exalted,' that at last he falls asleep.

' Now from his sleep, the knight, affrighted sprung,
 Whilst on his ear, the words of Johnson rung :
 For lo ! in dreams, the surly Rambler rose,
 And wildly staring, seem'd a man of woes.
 Wake Hawkins, (growl'd the doctor with a frown)
 And knock that fellow and that woman down—
 Bid them with Johnson's Life proceed no further—
 Enough already they have dealt in murder :
 Say, to their tales, that little truth belongs—
 If fame, they mean me—bid them hold their tongues.'

This is a very spirited and appropriated description : the following advice is also too good to be lost : we ' will take the ghost's word for a thousand pounds.'

' Tell Peter Pindar, should you chance to meet him,
 I like his genius—should be glad to greet him—
 Yet let him know, crown'd heads are sacred things,
 And bid him reverence more, the best of kings ;
 Still, on his Pegasus, continue jogging,
 And give that Boswell's back another flogging.'

Peter

Peter pays due attention to the last part of this advice ; but the rest seems, from the Eclogue before us, to be dispersed in air. The following lines are severe ; but we shall select them for the sake of the conclusion, which is sharply pointed and somewhat characteristic.

‘ For thee, James Boswell, may the hand of Fate
Arrest thy goose-quill, and confine thy prate :
Thy egotisms, the world disgusted hears—
Then load with vanities no more our ears
Like some lone puppy yelping all night long ;
That tires the very echoes with his tongue.
Yet should it lie beyond the pow’rs of Fate,
To stop thy pen, and still thy darling prate ;
Oh ! be in solitude to live, thy luck :
A chattering magpie on the Isle of Muck.’

A Poem on the Loss of the Halfewell East-Indiaman, Captain Pierce. To which is subjoined an Elegy on the unfortunate Sufferers. By a Law Student. 4to. 1s. 6d. Whieldon.

This student of the law professes himself to be endowed with some mental qualifications, which are not in general supposed to characterise gentlemen of that profession.

‘ Yet have I feelings worthy of my theme,
—Feelings – I prize beyond a poet’s fame ;
Feelings, which only nature can impart,
Beyond the reach of rhyme and skill of art.
‘Tis that sweet compassion for the sufferer’s woe,
Which those alone who feel, alone can know.’

We pay all credit to this gentleman’s ‘ feelings,’ but cannot speak very highly of his mode of expressing them.

The Impeachment : a Mock Heroic Poem. 4to. 1s. 6d. Stockdale.

This is a pleasant mock-heroic, on the popular subject of the day, and some of the parodies from Homer are executed very happily. The objects of the satire are the coalition, and its friend Mr. Burke ; and our author’s violent resentment sometimes blinds his eyes, so as to lose sight of decorum ; a fault too common with political combatants.

Sir Ralph of Stannerton Green. A Poem. 4to. 2s. Evans.

The incidents in this tale are very melancholy ; but, from the manner in which they are narrated, never interesting. Some passages are obscure, others vulgar, and the conclusion lame and impotent.

One morn I saw him on the green,
At the mild peep of dawning gray ;
But never more, sir Ralph was seen,
From that e’en to his dying day.’

The

The Gerusalemme Liberata of Tasso: with explanatory Notes on the Syntax in obscure Passages, and References to the Author's Imitations of the ancient Classics. To which is prefixed, a compendious Analysis of Italian Metre. By Agostino Isola. 2 Vols. 8vo. 10s. 6d. sewed. Robson.

This, for learners, is a very useful edition of the epic of Tasso: as the ellipses and inversions of poetical language are frequent impediments in the early period of the young Italian's studies. The editor professes also to introduce references to the author's imitations of the ancient classics; but this part of his task seems to be imperfectly executed: luckily it is not a very important one. The introductory analysis of the Italian metre is exceedingly useful. It is, on the whole, rather superficial; but seems to contain as much as is necessary to introduce the young student to more extensive systems.

Elegia scripta in Sepulchreto Rustico; Latine reddita. Cui subiunguntur alia Poemata. 4to. 2s. Lewis.

This translation of Gray's celebrated production is executed with fidelity and elegance. The other poems are written alternately in Latin and English, and are not destitute of merit.

Elegy written in a Country Church-Yard, by Mr. Gray; translated into Italian Verse, by J. Giannini, LL. D. 4to. 5s. Sold by the Translator.

The simplicity and pathos of the original are not happily preserved in this translation.

The Seasons of Life. A Poem. By the Rev. William Carwithin, A. B. 8vo. 5s. Wilkie.

This poem is not deficient in imagery, and the versification is, in general, tolerably well modulated; but the ideas are often rather fantastical than natural, and an air of juvenility prevails through the whole composition.

The Miscellaneous Poetic Attempts of G. Jones. Small 8vo. 3s. Kearley.

The author of these Attempts, it seems, is an uneducated journeyman wool-comber. His poetry is of very unequal texture. Much of it is satirical and petulant; and other parts discover a degree of refinement above the common standard of an uneducated mechanic.

The Breeches. A Tale. 4to. 1s. 6d. Bladon.

A low tale, of a country curate and a cobbler's wife; in which the canonical trespasser is punished by the husband with the loss of his breeches.

The

The English Orator. A Didactic Poem. 4to. 2s. 6d. Dilly.
Strictures from Nature. By the Rev. Richard Polwhele. 2d Edit.
 4to. 2s. Dilly.

We gave some account in our Fifty-ninth Volume, p. 308, 390, of these performances. Some alterations for the better are made in the first; and several additional sonnets inserted in the second.

D R A M A T I C.

The Bumbrusker. A Farce. 8vo. 1s. Bell.

This farce seems founded on a real fact: its personality is more obvious than either its wit or humour. We have had occasion to remark, that scientific wit is seldom successful: it is still less so when debased by obscenity.

The Fool, a Farce, in Two Acts. As performed at the Theatre Royal, Covent Garden. By Edward Topham, Esq. 8vo. 1s. Strahan.

This female Leon loses her judgment for a reason not well nor satisfactorily explained, and recovers it again equally unexpectedly. In short, she is a fool, to display the talents of a favourite actress, and becomes wise, to complete the denouement, in the happy style which farce requires. The incidents display broad humour, instead of wit, delicacy, or address; and this little piece may be allowed to fill up its hour on the stage, but should then be heard no more. The Prologue is, however, spirited and happy; one of the songs, sung by Mrs. Martyr, highly humorous and pleasing.

A Short Account of the new Pantomime called Omai; or, a Trip round the World; performed at the Theatre Royal in Covent Garden. 8vo. 6d. Cadell.

The poetry of this pantomime is of two kinds, serious and comical. The former is intended to describe, with *sublimity*, the manners and customs of the *Friendly Islanders*, &c. in captain Cook's voyage; and the latter to afford humorous merriment suitable to the pantomime.

N O V E L S.

Theodosius and Arabella. A Novel. In a Series of Letters. By the late Mrs. Hampden Pye. 2 Vols. 12mo. 5s. sewed. Lane.

Novelty must be very captivating, since it is purchased so dearly; for, with extensive modern margins, and a large letter, as in the volumes before us, it is sold at two shillings for each hour's entertainment.—We thought we had reached the bottom of the bathos; but *Theodosius and Arabella* were yet behind.

Arpasia; or the Wanderer. A Novel. By the Author of the *Nabob*. 3 Vols. 12mo. 7s. 6d. sewed. Lane.

This is a common story, but related with some art, and in many passages highly interesting. Hurried on by the events, there

is not much time to detect the numerous improbabilities which occur; and, affected by the situations, we are sometimes led to overlook inconsistencies in the characters. But these trifles are not to be accurately dissected. Those who are pleased with this kind of entertainment, may find amusement for an idle hour; and those whose whole attentions are devoted to novels, will at least receive no harm from *Arpasia*, or the *Wanderer*.

M I S C E L L A N E O U S.

Essays on the Subject of Education. 8vo. 3s. sewed. Dilly.

These Essays were published some time since, under different titles, in two of the morning papers; but certainly their merit is not such as to have entitled them to a re-publication.

A brief Account of a Seminary of Learning established at Margate, in Kent. 12mo. 6d.

Nothing more than an advertisement of a seminary, for the reception of twelve young gentlemen, under the care of a clergyman, rector of Leigh, in Worcestershire.

The Laws concerning Horses. By William Lucas, of the Middle Temple, Gent. 8vo. 1s. 6d. Whieldon.

Though Mr. Lucas informs us that this pamphlet is designed for the use of the farmer, the carrier, and the horse-dealer, he sets out in a manner very different from what we should expect in such a production. The first article we meet with is a pompous dissertation on the antiquity of the noble art of horsemanship. Beginning with the scholiast of Euripides and Eustathius, he proceeds to Chambers's Dictionary, whence he gleans whatever materials he could find under the title *horses*. He then presents us with the commonly known laws on the subject; concluding with the horse-tax, highway, and post-horse acts, with a few cases on horse-racing.

The Trial of the Rev. James Altham. Two Parts. 8vo. 2s. 6d. each. Lister.

This Trial, held in the consistorial and episcopal court at Doctors Commons, was for adultery, &c. It appears from the evidence, that Mr. Altham was subject to some intellectual infirmity.

The Trial of John Motherhill. Folio. 2s. 6d. Kearsley.

This Trial was for a rape on the body of miss Catherine Wade. The guilt of the culprit could not be doubted; but, from a supposed defect in the evidence, he escaped the punishment due to his crime.

* * * The *Foreign Literary Intelligence* will be resumed in our next, and continued in the succeeding Numbers of the *Critical Review*.

